SDC-0055-098-AC-7007A
February 20, 1998

SYSTEM FOR RISK MANAGEMENT PLANS (SRMP) DEFINITION DOCUMENT

CONTRACT NO. 68-W1-0055
DELIVERY ORDER NO. 098

Prepared for:

United States Environmental Protection Agency
Office of Solid Waste and Emergency Response
Chemical Emergency Preparedness and Prevention Office
401 M Street, SW.

Delivery Order Project Officer:

Elizabeth Jenkins

Prepared by:

EPA Systems Development Center
(A Contractor Operated Facility)
Science Applications International Corporation
200 North Glebe Road, Suite 300
Arlington, VA 22203

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1.0 INTRODUCTION

The Clean Air Act Section 112(r) requires the Environmental Protection Agency (EPA)[1] to publish regulations to prevent accidental releases of chemicals and to reduce the severity of those releases that do occur. On June 20, 1996, EPA published this regulation (known as the Risk Management Program (RMP) Rule) that sets forth the chemical release risk management program requirements for industry, state, and local government facilities.

EPA estimates that approximately 64,000 facilities are subject to the RMP Rule. Facilities that are subject to the RMP Rule will be required to implement an RMP and submit a plan every 5 years, or sooner if certain changes have occurred, to a central location specified by EPA. This plan is called the Risk Management Plan (RMPlan).

The RMP Rule states that RMPlans must be submitted to EPA prior to June 21, 1999, and then made available to the public. To facilitate the RMPlan submission, maintenance, and dissemination of the information to the public, EPA is developing an electronic submission, maintenance, and access system called the System for Risk Management Plans (SRMP).

Information gleaned from these RMPlans will be useful to: 1) state and local government entities responsible for chemical emergency preparedness and prevention; 2) environmental and community organizations and the public in understanding the chemical risks in their communities; and 3) industry and the public for stimulating a dialogue concerning improvement of accident prevention and emergency response practices. The SRMP will also be used to evaluate the state of chemical emergency prevention in the United States.

1.1 Purpose

The SRMP Definition Document defines the data and functional requirements for the three SRMP subsystems: RMP*Submit™ [2], RMP*Maintain, and RMP*Info™. In this document, the high-level requirements cited in the *System Concept for the System for Risk Management Plans (SRMP)* are expanded into specific, detailed functional and data requirements. The Concept and Definition documents form the basis for the detailed design of the system during the Design Phase of the Office of Solid Waste and Emergency Response (OSWER) System Life Cycle. Although the detailed functional and data requirements are defined within the context of the information identified in the System Concept Stage, the analyses conducted during the Definition Stage incorporate new requirements and new insights into the overall system

[1] Appendix A provides definitions of acronyms and abbreviations required to properly interpret this definition document.

[2] RMP*Submit™ and RMP*Info™ are EPA trademarks. The naming convention adopted by EPA is to use the trademark symbol for the first occurrence in a document and not for any following occurrences. This document follows this convention.

development. A list of SRMP functional requirements appears in the Requirements Traceability Matrix (RTM) in Appendix B.

1.2 Scope

The scope of this document is to define functional requirements and further specify the data requirements for the SRMP. This document follows the format in the OSWER System Life Cycle Management Guidance, as prescribed by the Delivery Order Project Officer (DOPO).

1.3 Assumptions and Constraints

The following assumptions and constraints apply to the security plan (Section 5.0):

- EPA Enterprise Technology Services Division (ETSD) is responsible for the management and maintenance of the firewall between Valley and Mountain.
- EPA ETSD will be responsible for communicating any Intranet and/or Internet security violations that impact the SRMP in any way.
- EPA ETSD will be responsible for providing Web access summary logs and statistics for RMP*Info in the production environment.
- The SRMP will reside within the EPA centralized computing environment, and as such will be part of the regularly scheduled database backups performed by ETSD.
- EPA ETSD will be responsible for the management and maintenance of RMP*Info once in production.
- The Chemical Emergency Preparedness and Prevention Office (CEPPO) Records Center will be responsible for management and maintenance of RMP*Maintain. This includes implementation of the procedures for assigning user IDs and passwords to SRMP users.

1.4 Organization

The Definition Document consists of the following sections. Section 1 of this document contains introductory material, including background information, document purpose, document scope, and document references. Section 2, Functional Requirements, provides a description of the functions and capabilities of the SRMP to guide the Design and subsequent phases of the OSWER System Life Cycle. Section 3, Data Requirements, Data Dictionary, and Data Management Plan, expands the data requirements in the System Concept into a statement (logical model) of data requirements that includes definitions of the individual data elements and a description of the data structure. Section 3 also addresses the plan for managing SRMP data, including the procedure by which system records will be archived. Section 4, Initial Configuration Accounting Records, addresses the method for controlling and accounting for changes to the software, documentation, and databases of the SRMP. Section 5, Security Plan, summarizes the procedural measures and security requirements for the SRMP, including hardware and software security measures.

The following appendices are also included in this document:

Appendix A	Terms and Abbreviations
Appendix B	Requirements Traceability Matrix (RTM)
Appendix C	ASCII File Format
Appendix D	SRMP Data Elements that Can Be Claimed as CBI
Appendix E	RMP*Submit Function Hierarchy Diagram
Appendix F	RMP*Maintain Function Hierarchy Diagram
Appendix G	RMP*Info Function Hierarchy Diagram
Appendix H	Function Entity Cross Reference for RMP*Submit
Appendix I	RMP*Submit Function Entity Cross Reference for RMP*Maintain Database
Appendix J	RMP*Maintain Function Entity Cross Reference
Appendix K	RMP*Info Function Entity Cross Reference
Appendix L	Entity Relationship Diagram (ERD) for RMP*Maintain
Appendix M	RMP*Submit Data Element Dictionary
Appendix N	RMP*Maintain Data Element Dictionary
Appendix O	RMP*Maintain Entity Descriptions

1.5 References

The following references are applicable to this document:

Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act Section 112(r)(7). Final Rule. 40 CFR Part 68. Signed May 24, 1996, published June 20, 1996.[3]

Environmental Protection Agency (EPA) Systems Development Center (SDC) Security Manual, SDC-0055-028-DJ-4019, August 15, 1995.

EPA Unix RDBMS Operating Guidelines and Procedures Manual Oracle Server for UNIX. November 22, 1994. Prepared for EPA under Work Assignment #S21-31, Contract #68-W2-0025.

ETSD Operational Directive 200.03, UNIX Security, December 2, 1993.
OSWER's System Life Cycle Management Guidance, EPA Directive 9028.00, July 29, 1988.

IRM Policy Manual 2100, Chapter 8. Information Security, July 24, 1995.

[3] This document is also known as the RMP Rule.

List of Regulated Substances and Thresholds for Accidental Release Prevention; Requirements for Petitions under Section 112(r) of the Clean Air Act as Amended. Signed January 14, 1994, published January 31, 1994.[4]

Product Assurance Plan for the System for Risk Management Plans (SRMP), SDC-0055-098-SW-7003, October 13, 1997.

Project Plan for the System for Risk Management Plans (SRMP) Development, SDC-0055-098-6004A, July 16, 1997.

System Concept Document for the System for Risk Management Plans, SDC-0055-098-RP-7004, January 5, 1998.

Disposition of Federal Records. 36 CFR 1228. Subpart J- *Transfer of Records to the National Archives*.

SDC Guideline: Configuration Management, SDC-0055-028-SS-6026, October 17, 1997.

Security Plan Appendix III of the Users Guide for Developing and Evaluating Security Plans for Unclassified Federal Automated Information Systems, Version #5 for Final Review. January 7, 1997.

2.0 FUNCTIONAL REQUIREMENTS

The functional requirements section provides a technology-independent description of the programmatic activities to be supported by the system. The requirements addressed in this section will serve as the basis for subsequent reviews and evaluations of the system throughout the system life cycle. The functional capabilities to be addressed include flows of information through the system, user interface needs, performance parameters for processing performed by the system, interfaces to other existing or developmental systems, security backup/contingency needs, implementation support, user support, and operational and maintenance support.

2.1 Functional Description of Proposed System

This section identifies the functional requirements for the three subsystems that comprise SRMP. The subsystems are identified as RMP*Submit, RMP*Maintain, and RMP*Info. The Administrative Change Function is logically modeled under the RMP*Submit function hierarchy; however, EPA has requested that the Administrative Change function be documented as an RMP*Maintain

[4] This document is also known as the List Rule.

requirement. The function names (in small caps), along with their plain text names identify the functions included in the Function Hierarchy Diagram for each subsystem. Subfunctions are identified in the text, as well.

2.1.1 RMP*Submit Functional Description

RMP*Submit is an application for inputting RMPlan data, validating the data, reporting data entry errors and warnings, and importing and exporting the data to and from an ASCII file that will be provided to EPA on diskettes. Additional capabilities to load ASCII file data and make administrative changes to RMPlans stored in RMP*Maintain shall be provided.

This section describes the functional requirements for processing RMPlan data and identifies the capabilities that will satisfy these requirements. The top-level RMP*Submit functions identified in the RMP*Submit Function Hierarchy Diagram (Appendix E) are Data Entry, Transfer, Standard Reports, and Validate. The Data Entry, Transfer, and Validate functions are further decomposed into lower level subfunctions that provide specific RMP*Submit capabilities. Sublevels of the Function Hierarchy, such as the Validation function, are only discussed briefly in the following section, as their detail is more germane to the Design Phase of the SRMP.

Upon startup of the RMP*Submit application, the user shall be provided with the capability to access all RMP*Submit functions. Other ancillary RMP*Submit functions such as an "About RMP*Submit" dialog and an Attachment Manager (to allow users to point to one or more versions of the RMPlan database file) shall also be accessible from within the RMP*Submit user interface.

2.1.1.1 Data Entry Function (DATA ENTRY)

The Data Entry function shall provide the capability for users to input RMPlan data using the keyboard or a mouse. The Data Entry function provides the functionality to capture data elements for the Executive Summary, Registration, Worst Case and Alternative Release Scenarios, Five-Year Accident History, Program Level 2 and Program Level 3 Prevention Programs, and Emergency Response Plan sections of the RMPlan that correspond to the conceptual tables identified in the System Concept document. The logical data model for RMP*Submit is described in Section 3.2.1 and identifies the decomposition (normalization) of the top-level entities identified during the Definition Phase.

The Data Entry function shall include an on-line user help capability. The Data Entry function on-line help shall provide the capability to perform standard content, keyword search, and context-sensitive help functions. The Data Entry function context sensitive search capability shall utilize the F1 function key to provide help text for each data element.

2.1.1.1.1 Registration Information Function (REGINFO)

The Registration Information Company (COMPANY) subfunction shall provide users with the capability to enter the name and the Dun and Bradstreet (DUNS) number for a parent company and one secondary joint venture partner. Company data shall be copied into the facility's registration data when the RMPlan is exported to EPA. The company function shall also provide a list of all of the parent companies' facilities with RMPlan data in the database. The Facility (FACILITY) function, depicted in the RMP*Submit Function Hierarchy Diagram (Appendix E), shall be activated when the user selects a facility from within the Company subfunction. The Company subfunction shall also provide users with the capability to add new facilities.

The user shall be provided with the capability to enter one or more covered processes for the current facility from within the Facility function. The Facility function shall provide access to the Process, Process NAICS, and Process Chemicals subfunctions (PROCESS, PROC_NAICS, and PROC_CHEM). For each covered process, the user shall be able to select one or more process chemicals for the process from a list of chemicals that are composed of those in the List Rule plus a supplementary list of generic chemical categories and choices for "flammable mixture" and "CBI flammable substance."

If the user selects "Flammable Mixture" as the reported chemical, the Flammable Mixture Chemical function (FL_MIX_CHM) shall allow the user to identify chemicals that comprise the flammable mixture from the chemical lookup table. Quantities will not be reported for flammable substances within a mixture individually, but will be reported for the flammable mixture as a whole.

Users shall not be able to select generic Confidential Business Information (CBI) chemical names unless they specifically request them to be provided through the Process function (PROCESS). A warning message will be displayed that informs the user of the requirement to submit: 1) a paper copy of the substantiation for the CBI claim, and 2) a paper copy of the unsanitized version of the RMPlan. The Process Chemicals function (PROC_CHM) shall allow the user to specify that the quantity of the selected chemical is not being supplied because it is CBI.

The Registration Information function shall provide users with the capability to select North American Industrial Classification System (NAICS) codes that are associated with a specific covered process. This function is known as the Process NAICS function (PROC_NAICS).

The Registration Information function shall inform users, upon leaving this function, if any required data elements were not filled in, or if the value of any data element is outside of a range of acceptable values. The Registration Information function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.2 Executive Summary Function (EXEC_SUM)

The user shall be able to activate the Executive Summary function, depicted in the RMP*Submit Function Hierarchy Diagram (Appendix E), from the Registration Information function. The Executive Summary function shall allow the user to enter a text-only executive summary for the current facility.

The Executive Summary function shall allow users to resume processing to edit the text or, if they choose, exit the function without losing any data that has already been entered. The Executive Summary function shall inform users, upon leaving this function, if no information was supplied.

2.1.1.1.3 Worst Case and Alternative Release Scenarios Function (OCA)

The Worst Case and Alternative Release Scenarios function is composed of four subfunctions that provide the user the capability to enter hazard analysis data. These subfunctions are: 1) Toxics Worst Case Scenario (TOX_WC_SC), 2) Flammables Worst Case Scenario (FLM_WC_SC), 3) Toxics Alternative Release Scenario (TOX_AR_SC), and 4) Flammables Alternative Release Scenario (FLM_AR_SC). These subfunctions may be invoked from the Registration Information function (REGINFO).

The user may elect to claim that certain data elements are CBI. A list of the data elements that may be claimed as CBI within each section of the RMPlan is shown in Appendix D.

From within each of these functions, the user shall be provided the capability to select a chemical that has been registered and has the appropriate program level. The selected chemical must be logical for the specific scenario. As an example, the user will only be able to select toxic chemicals that are registered in Program Level 2 or Program Level 3 processes from the Toxics Alternative Release Scenario function. The complete set of process and chemical constraints for these functions is provided in the RTM (Appendix B).

2.1.1.1.3.1 Toxics Worst Case Scenario Function (TOX_WC_SC)

The Toxics Worst Case Scenario function shall provide the user with the capability to report multiple toxic worst case scenarios for a toxic chemical in a covered process. The Toxics Worst Case Scenario function shall allow the user to specify that information in the current scenario contains CBI data and is not being reported. If the user specifies that CBI information is not being reported, validation rules for required fields that can be claimed as CBI shall be relaxed.

The Toxics Worst Case Scenario function shall inform users, upon leaving, if any required data elements were not filled in or if the value of any data element is outside the range of acceptable

values. The Toxics Worst Case Scenario function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.3.2 Flammables Worst Case Scenarios Function (FLM_WC_SC)

The Flammables Worst Case Scenario function shall provide the user with the capability to report multiple flammables worst case scenarios for any flammable substance or mixture in a covered process. The Flammables Worst Case Scenario function shall allow the user to specify that information in the current scenario contains CBI data and is not being reported. If the user specifies that CBI information is being withheld, validation rules for required fields that can be claimed as CBI shall be relaxed.

The Flammables Worst Case Scenario function shall inform users, upon leaving, if any required data elements were not filled in or if the value of any data element is outside of the range of acceptable values. The Flammables Worst Case Scenario function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.3.3 Toxics Alternative Release Scenario Function (TOX_AR_SC)

The Toxics Alternative Release Scenario function shall provide the user with the capability to report multiple toxics alternative release scenarios for a toxic chemical in a Program Level 2 or Program Level 3 covered process. The Toxics Alternative Release Scenario function shall allow the user to specify that information in the current scenario contains CBI data and is not being reported. If the user specifies that CBI information is being withheld, validation rules for required fields that can be claimed as CBI shall be relaxed.

The Toxics Alternative Release Scenario function shall inform users, upon leaving, if any required data elements were not filled in or if the value of any data element is outside of the range of acceptable values. The Toxics Alternative Release Scenario function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.3.4 Flammables Alternative Release Scenario Function (FLM_AR_SC)

The Flammables Alternative Release Scenario function shall provide the user with the capability to report multiple flammables alternative release scenarios for a CBI flammable substance, flammable chemical, or flammable mixture in a Program Level 2 or Program Level 3 covered process. The Flammables Alternative Release Scenario function shall allow the user to specify that information in the current scenario contains CBI data and is not being reported. If the user specifies that CBI

information is being withheld, validation rules for required fields that can be claimed as CBI shall be relaxed.

The Flammables Alternative Release Scenario function shall inform users, upon leaving, if any required data elements were not filled in or if the value of any data element is outside of the range of acceptable values. The Flammables Alternative Release Scenario function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.4 Five-Year Accident History Function (5YR_HIST)

The Five-Year Accident History function shall provide the capability to enter accident history data and to invoke the Five-Year Accident History Chemical function (ACDNT_CHEM). The Five-Year Accident History function shall be invoked from the Registration Information function (REGINFO). The Five-Year Accident History Chemical function (ACDNT_CHEM) shall provide the capability to identify all chemicals from the chemical lookup table that were involved in the accident being reported along, with the quantity released and the percent weight of the chemical.

The Five-Year Accident History function shall inform users, upon leaving this function, if any required data elements were not filled in or if the value of any data element is outside of a range of acceptable values. The Five-Year Accident History function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.5 Prevention Program Function (PREV_PROG)

The Prevention Program function is composed of four data entry subfunctions: Prevention Program 2 function (PREV_PROG2), Prevention Program 3 function (PREV_PROG3), Prevention Program 2 Chemical (PP2_CHEM) function, and Prevention Program 3 Chemical (PP3_CHEM) function. Prevention Program 2 and Prevention Program 3 functions shall be invoked from the Registration Information function (REGINFO). The Prevention Program 2 Chemical and Prevention Program 3 Chemical functions shall be invoked from the Prevention Program 2 and Prevention Program 3 functions respectively. The user may elect to claim that certain data elements are CBI. A list of the data elements that may be claimed as CBI within each section of the RMPlan is shown in Appendix D.

2.1.1.1.5.1 Prevention Program 2 Function (PREV_PROG2)

The Prevention Program 2 function shall provide the capability to select a process/NAICS code combination that was previously entered via the Process NAICS function (PROC_NAICS). The selection of the process/NAICS code combination shall be constrained to Program Level 2

processes. The Prevention Program 2 function shall allow the definition of multiple prevention programs for a single process/NAICS code combination. The Prevention Program 2 Chemical function (PP2_CHEM) shall provide the capability to enter one or more chemicals from the list of chemicals defined for the process specified in the selected Process/NAICS code combination. The Prevention Program 2 function shall allow the user to specify that information in the current scenario contains CBI data and is not being reported. If the user specifies that CBI information is being withheld, validation rules for required fields that can be claimed as CBI shall be relaxed.

The Prevention Program 2 function shall inform users, upon leaving the function, if any required data elements were not filled in or if the value of any data element is outside of a range of acceptable values. The Prevention Program 2 function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.5.2 Prevention Program 3 Function (PREV_PROG3)

The Prevention Program 3 function shall require the selection of a process/NAICS code combination that was previously entered via the Process NAICS function (PROC_NAICS). The selection of the process/NAICS code combination shall be constrained to Program Level 3 processes. The Prevention Program 3 function shall allow the definition of multiple prevention programs for a single process/NAICS code combination. The Prevention Program 3 Chemical function (PP3_CHEM) shall provide the capability to enter one or more chemicals from the list of chemicals defined for the process specified in the selected Process/NAICS code combination. The Prevention Program 3 function shall allow the user to specify that information in the current scenario contains CBI data and is not being reported. If the user specifies that CBI information is being withheld, validation rules for required fields that can be claimed as CBI shall be relaxed.

The Prevention Program 3 function shall inform users, upon leaving the function, if any required data elements were not filled in or if the value of any data element is outside of a range of acceptable values. The Prevention Program 3 function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.1.6 Emergency Response Plan Function (EMER_RESP)

The Emergency Response Plan function (EMER_RESP) shall provide the capability to indicate whether the facility is included in a written community Emergency Response (ER) Plan and/or has its own written plan. It also allows the specification of additional information about the ER Plan. The Emergency Response Plan function (EMER_RESP) shall be invoked from the Registration Information function.

The Emergency Response Plan function shall inform users, upon leaving this function, if any required data elements were not filled in or if the value of any data element is outside of a range of acceptable values. The Emergency Response Plan function shall allow users to resume processing to correct any data entry error or, if they choose, exit the function without losing any data that has already been entered correctly.

2.1.1.2 Validation Function (VALIDATE)

The Validation function (VALIDATE) shall provide the capability to perform domain, referential integrity, record level, and RMPlan-level data validation. Domain validation ensures that entered values are of the correct type, format, and within a specified range or list of values. Referential integrity will ensure that there are no orphaned child records in the system. Record-level validation ensures that all required fields in a record are supplied. RMPlan-level validation ensures that the minimum required set of RMPlan sections are present and conform to all other types of validation performed by the Validation function.

The Validation function is decomposed in the RMP*Submit Function Hierarchy Diagram (Appendix E) into the following subfunctions:

1. Executive Summary (EXECSMRY). This function shall ensure that each RMPlan contains one and only one Executive Summary.

2. Facility Registration Information (FACREG). This function shall ensure that each RMPlan contains one and only one set of facility registration information.

3. ER Plan (ERPLAN). This function shall ensure that each RMPlan contains one and only one ER Plan.

4. Covered Processes (PROCESSES). This function shall validate the RMPlan covered processes based on the program level of the process. The Covered Processes function has two subfunctions that validate the Toxics and Flammables Worst Case and Alternative Release Scenarios (SCENARIOS) and the NAICS codes (NAICSVAL) based on process program levels. Each scenario has its own subfunction (TOXICWRST, TOXICALT, FLAMWRST, and FLAMALT) plus a subfunction to ensure that no alternative release scenarios are defined for Program Level 1 processes (PRG1ALT), and a function to ensure that there is at least one Section 2 or one Section 4 for each Program Level 1 process.

   The validation rules for NAICS codes within program levels and processes are defined by the following subfunctions:

- PRG3NAICS - ensures that the RMPlan contains at least one Section 7 for each NAICS code within each Program Level 3 process.
- PRG2NAICS - ensures that the RMPlan contains at least one Section 8 for each NAICS code within each Program Level 2 process.
- PRG1NAICS - ensures that no prevention programs are defined for NAICS codes that only appear in Program Level 1 processes.
- NAICSMIN - ensures that at least one NAICS code is reported for each process in the RMPlan.
- PRGLEVEL - ensures that the NAICS codes defined for each process are valid for the program level of each process. Certain NAICS codes cannot be used for Program Level 2.

5. Column Validation (COLUMNVAL). This function is decomposed into four subfunctions that shall validate the value Range Check function (RANGECHK), Enum Check function (ENUMCHK), format Domain Check function (DOMAINCHK), Locational Coordinates (LATLONG), and CBI Optionality (REQMAN) (whether a required field contains a non-null value or has been claimed as CBI) of each column within each RMPlan record. Locational Coordinates is further broken down into functions which allow conversion from degrees, minutes, seconds to decimal degrees and vice versa (LATCONV, LONGCONV), and checking the entered value against the min/max county bounding box (LATVAL, LONGVAL).

   CBI Optionality is composed of the CBI Error (CBIERR) and CBI Warning (CBIWARN) function. CBI Error shall report an error if a required field that can be claimed as CBI is not entered and the CBI flag for the record containing the field is set to 'N' (CBIERR). CBI Warning shall report a warning if a required field that can be claimed as CBI is not entered and the CBI flag for the record containing the field is set to 'Y' (CBIWARN).

6. Chemical Values (CHEMVAL). This function shall validate that chemicals reported for processes, prevention programs, and flammable mixtures, as defined by the following subfunctions:

   - S7CHEMVAL - ensures that the chemicals associated with a Program Level 3 Prevention Program (Section 7) are a subset of the chemicals for the process to which the prevention program belongs.
   - S8CHEMVAL - ensures that the chemicals associated with a Program Level 2 Prevention Program (Section 8) are a subset of the chemicals for the process to which the prevention program belongs.
   - UNIQCHEM - ensures that the same chemical is not reported more than once in the same process if the chemical is not a flammable mixture or a CBI chemical category.

- FLAMMIX - ensures that no toxic chemical, generic chemical category, or flammable mixture is reported as a component of a flammable mixture.
- MIXMINCHEM - ensures that at least one flammable chemical is reported as a component of each flammable mixture.

7. CBI Flag (CBIFLAG). This function shall validate that the facility CBI Code will be set to "true," if any RMPlan section contains CBI data.

2.1.1.3 Transfer Function (TRANSFER)

The Transfer function is composed of the Import (IMPORT), Export (EXPORT), Load (LOAD), and Administrative Change (ADMIN) subfunctions. For a discussion of the Administrative Change subfunction, refer to Section 2.1.4.

The Import function shall provide the capability to read the ASCII file format shown in Appendix C and populate internal database tables within RMP*Submit. The import function shall invoke the validation functions described in Section 2.1.1.2.

The Export function shall provide the capability to output RMPlan data to an ASCII file formatted according to the specifications in Appendix C. The Export function shall be aware of the validation status of the data in the plan and notify users when plan data is incorrect or incomplete. RMP*Submit shall not export an RMPlan if errors are present.

The Load function shall transfer validated RMPlans to the RMP*Maintain database. The RMPlans may be submitted via diskette or paper and entered into the system via the Import function or the Data Entry function (DATA ENTRY) respectively.

2.1.1.4 Standard Report Function (STDREPORT)

The Standard Report function is composed of two subfunctions, Error Report (ERROR_RPT) and RMPlan Report (RMP_RPT). The Error Report function shall provide the capability to generate an error report if errors are encountered while performing the Validate function. The RMPlan Report function shall provide the capability to print a copy of an entire facility's RMPlan.

These reports will assist facilities in determining when the RMPlan can be mailed to EPA and assist CEPPO Records Center staff in determining when the plan can be loaded into the RMP*Maintain database. Error reports shall contain the results of the rule checks that apply to sections of the RMPlans and reported chemicals, as well as results of the validation of the domains and values for individual fields.

2.1.2 RMP*Maintain Functional Description

RMP*Maintain is an application that will reside within the CEPPO Records Center. RMP*Maintain will be the repository for all RMPlan data, and shall provide the capabilities to archive RMPlan information that is beyond 15 years, log administrative changes, and refresh the RMP*Info database with RMPlan data from the RMP*Maintain database. The RMP*Maintain Function Hierarchy Diagram is shown in Appendix F.

This following sections describe the functions RMP*Maintain will use to process RMPlan data. The top-level functions are Archive, Log, Report, Download, RMP*Info Database Operations, and Facility ID.

2.1.2.1 Archive Function (ARCHIVE)

RMP*Maintain shall provide the capability to maintain 15 years of RMPlan data. This corresponds to three plans, if submitted every 5 years, although more frequent submissions will be stored as they are received. The Archive function shall copy RMPlan data that is beyond 15 years from the RMP*Maintain database to a storage medium compatible with National Archives and Records Administration standards at the time of archiving, and then delete the RMPlan data from the RMP*Maintain database.

2.1.2.2 Log Function (LOG)

The Log function shall record administrative changes to registration data. The Log function shall be invoked when a record is updated in the table corresponding to the S1_FACILITY entity in the RMP*Maintain database. This function shall populate the table corresponding to the S1_FACILITY_ADMIN entity and allow the recording of the date the change was made by the CEPPO Records Center. RMP*Maintain will automatically enter this date and save the old values.

2.1.2.3 Report Function (REPORT)

The Report function will generate standard reports associated with the Archive, Manage, Download, and Refresh functions. The reports that will be generated by this function will be defined during the Design Phase.

2.1.2.4 Download Function (DOWNLOAD)

The ASCII files will be used by the Records Center to create the State dBase files. The information to be downloaded and the format of the ASCII file will be defined during the Design Phase.

2.1.2.5 RMP*Info Database Operations Function (INFODB)

The RMP*Info Database Operations function is composed of three subfunctions: Purge (PURGE), Refresh (REFRESH), and Administrative Change Transfer (ADMININFO), which manage the transfer of information from RMP*Maintain to RMP*Info.

The Purge function shall remove RMPlan data older than 15 years from the RMP*Info database.

The Refresh function shall copy validated RMPlans from RMP*Maintain into RMP*Info at a regularly scheduled interval. The refresh interval will be defined in the Design Phase.

The Administrative Change Transfer function shall scan the table in RMP*Maintain corresponding to the S1_FACILITY_ADMIN entity for any records containing unapplied administrative changes for RMPlans in the RMP*Info database. The function will then update the RMP*Info database with this information.

2.1.2.6 Facility ID Function (GENFACID)

The Facility ID function will generate a unique facility ID for a first-time RMPlan submission for a facility. An RMPlan will be considered a first-time submission, if the submitter has indicated that it is an initial submission and the Facility ID field is blank.

2.1.3 RMP*Info Functional Description

RMP*Info will process requests for data from Web browsers via the Oracle Web server used by the Envirofacts database. To facilitate this, the top-level RMP*Info functions are Query (QUERY) and Metadata (METADATA). The RMP*Info Function Hierarchy Diagram appears in Appendix G. The QUERY function provides the capability to query the RMP*Info database. The METADATA function provides the capability to retrieve metadata for the attributes, as well as the design of the RMP*Info database (METADATA).

2.1.4 Administrative Change

The Transfer function (TRANSFER, Section 2.1.1.3) contains an Administrative Change subfunction (ADMIN) that shall provide the capability to modify administrative data in an existing RMPlan. Modifications made with the Administrative Change function shall not reset the 5-year anniversary date of the RMPlan. A facility will submit administrative changes using a paper copy of the RMP Administrative Changes Form currently under development by EPA. The CEPPO Records Center shall be provided the capability to enter the administrative data

directly into RMP*Maintain. Administrative changes will be made only to the latest RMPlan for a facility and will consist of data elements of the table corresponding to the S1_FACILITY entity in the RMP*Maintain database. A facility will be uniquely identified in the RMP*Maintain database by an RMP_ID data element in the table corresponding to the S1_FACILITY entity. The data elements in the table corresponding to the S1_FACILITY entity for which administrative changes may be made are listed in Appendix N.

2.2 Data Storage Estimates

This section provides an initial estimate of the Oracle tablespace requirements for RMP*Maintain. The estimate assumes that the key drivers are multiplicative factors such as the number of facilities, number of processes per facility, etc. The model also uses the record lengths for the sections of the RMPlan provided in Appendix N. Using realistic estimates for drivers is extremely important in achieving a good estimate for the initial Oracle table space size. If these assumptions are too high or (worse) too low, the estimate may be off considerably. Oracle recommends that a growth factor be applied for the first year after the table space is allocated. Section 2.2.1 details the results from the model, which is a size estimate for the data table space. Estimates for temporary and system table space requirements for Oracle are also listed. In addition, approximately 0.5 GB of file system space will be required for code development and Configuration Management (CM).

RMP*Maintain will keep data over a 15-year period before older data is spooled to an archive file. This data includes the required 5-year plans and resubmitted data including complete plans that reset the anniversary date, and administrative changes. The model incorporates a strategy for minimizing storage costs incurred by SRMP by providing an estimate for the first 5 years only. This strategy defers the storage costs for the next two 5-year periods. Additionally, by allocating enough disk space to handle the estimated needs for a 5-year period, the administrative costs and downtime associated with reallocation of table space within the 5-year period will be minimized. Furthermore, as technologies change, storage costs have historically declined, so CEPPO may achieve additional cost benefits in the out-years using this approach.

2.2.1 Data Tablespace Model

The analysis for the data model was divided into three logical parts. The first part of the analysis identified the most likely table organization for RMPlan data and a determination of record lengths. The record lengths shown in the RMP*Maintain Data Element Dictionary (Appendix N) were summed (excluding the CBI comment and flag fields) within each plan section to determine the size, in bytes, for each section shown in Exhibit 1. For Oracle data types such as DATE, which are stored as binary in the database, the format of the field was used to determine the field size. In this case the format is YYYYMMDD, so 8 bytes was used. It is recognized that this introduces some error into the estimate, but the error introduced is not significant relative to the assumptions made to determine the number of sections expected for the entire universe of RMPlans.

The second part of the analysis consisted of an assumption about the mix of process types being modeled. The allocated mix of RMPlan sections across the universe of industries modeled was supplied by CEPPO. Because average values across industries are modeled, the *Number* column in Exhibit 1 contains fractional values.

The third part of the analysis identified and assigned weights to the key drivers utilizing guidance provided by CEPPO. Again, to account for the universe of different industries, fractional values are used. The key drivers (and their values) in the storage estimation model are the number of facilities (64,282), the number of processes per facility used in the model (1.7), the number of chemicals reported for the Flammables: Worst Case Scenario (1.42), and the number of copies of resubmitted RMPlan data for a facility maintained in the database. It was assumed that two copies of RMPlans for each facility would be maintained in the database, and that a portion of the facilities will have submitted the RMPlan to cover the next 5-year period prior to the end of the first 5-year disk allocation. Therefore, it was estimated that 2.25 RMPlans for each facility would be in the database within the first 5-year period. Executive Summary size was modeled at 6800 bytes (approximately 3.4 pages) and graphics files were modeled at 300K bytes each. A total of 10,000 graphic files was assumed.

The overhead imposed by the CBI comment and flag fields was calculated based on the assumption that approximately 30 percent of the facilities (19,285) will fully utilize these fields. The size of the CBI comment and flag fields is 2001 bytes, producing a size estimate of
38,589, 285.

It was assumed that approximately 20 percent of the facilities (12,856) would have administrative changes. The size of the S1_FACILITY_ADMIN entity is much larger then the probable size of the changes that will be submitted. A size of 250 bytes for the changes per facility was assumed, producing an estimate of 3,214,000 bytes for the administrative change overhead.

Exhibit 1 contains the model results. Subtotals in the model are the size of one facility, the size for all 64,282 facilities, the size for resubmitted plans, and the size for graphics. The grand total is also provided. All size estimates are in bytes.

Section	Number	Size (Bytes)	Extended Size (Bytes)
Section 1	1.0	1084	1,084
Section 2	0.5	144	72
Section 3	1.2	217	260
Additional Section 3's			260
Section 4	0.6	81	49
Section 5	0.5	215	108
Additional Section 5's			108
Section 6	0.7	407	285
Section 7	0.7	652	456
Section 8	0.9	724	652
Section 9	1	185	185
Processes	1.7	25	43
Chemicals	1.42	614	872
		Basic RMPlan:	4,433
		Executive Summary:	6,800
		One Facility:	11,233
		All Facilities	722,059,136
		Resubmitted Plans	1,624,633,055
		10,000 Graphics	3,000,000,000
		CBI Overhead	38,589, 285
		Administrative Change Overhead	3,214,000
		Total Data (Bytes)	5,349,944,780

Exhibit 1. Data Model Results

Thus, the total data storage requirement is approximately 5.5 gigabytes (GB) of storage. Adding 0.5 GB for CM and development brings the total to approximately 6.0 GB.

2.2.2 Oracle Storage Requirements

The Oracle RDBMS requires storage space for its operation. Items requiring space are shown in Exhibit 2. The space for the indexes was estimated at approximately 50 percent of the data. The estimates for system, temporary, and rollback storage were calculated based on those for Envirofacts using a ratio of SRMP data size versus Envirofacts data size.

Item	Size (GB)
System storage	0.20
Temporary storage	0.15
Rollback storage	0.50
Indexes	3.00
Total	3.85

Exhibit 2. Oracle Storage Requirements

2.2.3 Data Storage Requirements Summary

Including data, CM, development, and system overhead, it is estimated that approximately 10 GB of storage space be reserved for RMP*Maintain during its first 5 years of operation. During the Design Phase, the physical tables will be created, thereby allowing more accurate size estimates. This estimate is provided for planning purposes only.

2.3 Organizational Impacts

The role of the CEPPO Records Center is only partially defined. At this time, it is unclear whether this organization will have any impacts to the system. It is expected that issues involving Records Center operations will be defined and resolved within the Design Phase. At this time it will be possible to assess and resolve any impacts that work flow within the Records Center may have on the SRMP. It is anticipated that Records Center operations will affect the logical design proposed for the loading of RMP*Maintain and the RMP*Info refresh.

In addition, the concept of how to assign and maintain the RMP_ID is still being developed. Under the current design, the system can generate this ID during the initial load but, from that time on the ID, must stay with the facility if the administrative change requirements are to be implemented. At present EPA is still defining the format and algorithm deriving for the RMP_ID.

2.4 Capabilities Potentially Provided by Existing Systems

In the ERD for RMP*Maintain shown in Appendix L, the light gray entity boxes represent external lookup entities owned by Envirofacts. These lookup tables will enable a more meaningful display of information in RMP*Info retrievals. For example, database values, such as State FIPS code (a number), can be displayed as the more meaningful state postal abbreviation.

2.5 Differences from System Concept

No differences from the System Concept were discovered during the Definition Phase of the Life Cycle. However, the concept of operations surrounding the CEPPO Records Center is still being defined, along with the requirements for the format and generation of the RMP_ID. It is anticipated that there will be some design changes necessary once these requirements have been defined.

2.6 Functional Requirements Excluded from this System

There are no requirements from the System Concept document that were excluded during the Definition Phase of the life cycle. The RTM in Appendix B traces the requirements from the Concept to Definition Phase, and lists all additional new and derived requirements in this Definition document. The RTM is used to trace requirements through each phase of the OSWER System Life Cycle. Each row in the RTM represents one unique system requirement and is assigned a unique identification number (ID) based on the subsystem to which the requirement has been allocated and the order in which the requirement was identified. The RTM contains columns representing trace-points in the System Life Cycle. For instance, the Definition column in the RTM identifies the paragraph number in this Definition document where a requirement was defined. The following information will be loaded into the RTM for each requirement contained in the document:

- Requirement No.: Requirement Identification Number
- Source and PCN: Requirement Source with associated Product Control Number (PCN) which is assigned to all SDC documentation products and identifies the product throughout the system development life cycle.
- Requirement Statement: Requirement description text.
- Definition and PCN: Number of the section or paragraph in the *Definition Document for the System for Risk Management Plans (SRMP)* that contains the requirement and associated PCN.
- Parent Requirement: Requirement Identification Number of the Definition Phase requirement from which this requirement was derived. This is known as the Parent Requirement Identification Number.
- Designation: Designation of the requirement as Mandatory, Targeted, or Extended. These designations are described as follows:

    - Mandatory: Mandatory requirements must be met in order for the release to fulfill customer and project expectations.
    - Targeted: These requirements are allocated to a version with the understanding that they represent functionality that is not critical to the mandatory requirements for that version. Where implementation of targeted requirements would delay the release, they might not be included in the release. Instead, they would be assigned to the next release.

- Extended: These are requirements defined for future enhancements. They might be included in an earlier release, where there is good reason, based on their potential effect on the overall design and implementation.

3.0 DATA REQUIREMENTS, DATA DICTIONARY, AND DATA MANAGEMENT PLAN

The purpose of this section is to describe the specific data to be included in and maintained by the system, as well as the logical structure and relationships of the data. The requirements consider the need for clarification of program policy, guidance, or procedures to ensure clear definitions of the data. The data management plan addresses the procedure by which the system records will be created, maintained, used, and archived in the manner consistent with the records schedule that has been drafted for the SRMP.

3.1 Logical Data Model of Entities and Elements

The sections (parts) of a RMPlan for a facility and the data elements that represent the contents of each section were identified and described in the *System Concept Document for the System for Risk Management Plans (SRMP)*. The concept document allocates the sections of the RMPlan to conceptual tables and describes the relationship of these tables to each other.

During the Definition Phase, a logical model of these conceptual tables (known as entities in the logical model) and the relationships between them was developed. This logical model, known as the RMP*Maintain ERD shown in Appendix L, expanded upon the data requirements identified in the *Concept Document*. The relationships in the ERD reflect many of the business rules that will be validated during data input and enforced by the referential integrity of the database. Additional entities appear in the ERD for which there are no conceptual tables in the *Concept Document*. These entities were added to support the validation of individual data elements by RMP*Submit and to support the historical storage of administrative change data for registration information in RMP*Maintain.

Although RMPlan data will be processed and/or stored in three separate databases (RMP*Submit, RMP*Maintain, and RMP*Info), the differences between the databases at the logical level will be minimal. Therefore, the RMP*Maintain ERD in Appendix L will be used as the logical model for the RMP*Submit, RMP*Maintain, and RMP*Info databases. A legend is provided in Appendix L to define the symbols and standards used in the ERD to identify entities, attributes, and relationships. A description of the entities in this ERD appears in Appendix O. The following sections provide information to be used when reviewing the ERD and describe the ERD as it applies to each of the three databases.

3.1.1 RMP*Maintain

The MINMAX_BOUND_LK entity that appears in the RMP*Maintain ERD will not be implemented as a physical table in the RMP*Maintain database. The physical table corresponding to this entity will be used by RMP*Submit for validating RMPlan latitude and longitude values against a county bounding box.

3.1.2 RMP*Submit

In RMP*Submit, the COMPANY entity, that does not appear in the RMP*Maintain ERD, will be required to support the preparation of RMPlans for multiple facilities at a given site. Additionally, the S1_FACILITY_ADMIN entity that appears in the RMP*Maintain ERD will not be implemented as a table in the RMP*Submit database because the history of administrative changes will only be stored in RMP*Maintain.

3.1.3 RMP*Info

The RMP*Info database will contain a subset of the RMPlan data in the RMP*Maintain database. The S1_FACILITY_ADMIN entity that appears in the RMP*Maintain ERD will not be implemented as a table in the RMP*Info database because the history of administrative changes will only be stored in RMP*Maintain. Additionally, the MINMAX_BOUND_LK entity that appears in the RMP*Maintain ERD will not be implemented as a physical table in the RMP*Info database. The physical table corresponding to this entity is exclusive to RMP*Submit.

3.2 Normalization

Every effort has been made to model the RMP*Maintain ERD in third normal form. In some cases, however, de-normalization of data entities was performed. Performance considerations may require further de-normalization during the physical design of the RMP*Submit, RMP*Maintain and RMP*Info databases. The sections that follow describe the normalization required for RMP*Submit and RMP*Maintain. The normalization of RMP*Info will be assumed to be identical to RMP*Maintain at this time, although no final decision has been made as to what RMPlan data will be stored in the RMP*Info database.

3.2.1 RMP*Submit Normalization

Registration information has been allocated to the following RMP*Submit entities: S1_COMPANY, S1_FACILITY, S1_PROCESS, S1_PROCESS_CHEMICAL, S1_FLAMMABLE_MIXTURE_CHEMICAL, AND S1_PROCESS_NAICS.

A company may prepare RMPlans for one or more facilities, and a facility may in turn report on one or more Program Level 1, Program Level 2, and/or Program Level 3 processes. Each covered process contains one or more chemicals. The chemicals in the S1_PROCESS_CHEMICAL entity will be selected from a combined lookup table containing both toxic and flammable chemicals. If a process chemical is identified as "Flammable Mixture," it will have one or more associated occurrences of the S1_FLAMMABLE_MIXTURE_CHEMICAL entity. Each process will be related to one or more occurrences of the S1_PROCESS_NAICS entity.

3.2.2 RMP*Maintain Normalization

RMP*Maintain data are normalized into entities and attributes, as shown in Appendix L. Each entity must have a primary key consisting of one or more attributes and/or relationships that uniquely identifies a single occurrence of the entity. For example, the FACILITY_ID attribute is the primary key for S1_FACILITY, and it uniquely identifies a single occurrence of S1_FACILITY. Most RMP*Maintain entities use substitute identifiers instead of natural identifiers in order to provide maximum flexibility in dealing with future regulation volatility. Substitute identifiers consist of non-intelligent, unique numbers that are usually sequentially-assigned and system-generated. When substitute identifiers are used, any attribute, other than the identifier itself, or a relationship within an entity may be modified or deleted and the substitute identifier will still uniquely identify each occurrence of the entity. The effectiveness of natural identifiers, which consist of one or more of an entity's attributes and/or relationships, may be impacted if an attribute or relationship which is part of the identifier is modified or deleted, or if an attribute or relationship is added to the existing natural identifier.

Exceptions to RMP*Maintain normalization occur in the entities S1_EXEC_SUMMARY and S9_EMERGENCY_PLAN because they depend solely on the primary keys of another entity in a one-to-one relationship and could be included within the other entity. These large data sections were moved to separate entities to mitigate anticipated data retrieval performance issues.

For a given RMP: Each S1_FACILITY always reports one and only one S1_EXEC_SUMMARY. Each S1_FACILITY sometimes reports one or more S1_FACILITY_ADMIN. Each S1_FACILITY always reports one and only one S9_EMERGENCY_PLAN. Each S1_FACILITY sometimes reports one or more S6_ACDNT_HISTORY. Each S1_FACILITY always reports one or more S1_PROCESS. Each S1_FACILITY always references one and only one LDIP_COLLECT_MTH_LK. Each S1_FACILITY always references one and only one LDIP_DESC_CAT_LK. Each S1_FACILITY always references one and only one LEPC_LK. Each S1_FACILITY always references for facility location one and only one COUNTY. Each S1_FACILITY always references for facility location one and only one STATE. S1_FACILITY always references for owner location one and only one STATE.

Each LDIP_COLLECT_MTH_LK sometimes is referenced by one or more S1_FACILITY. Each LDIP_DESC_CAT_LK sometimes is referenced by one or more S1_FACILITY.

Each LEPC_LK sometimes is referenced by one or more S1_FACILITY. Each LEPC_LK always references one and only one COUNTY.

Each COUNTY sometimes is referenced by one or more S1_FACILITY. Each COUNTY sometimes is referenced by one or more LEPC_LK . Each COUNTY sometimes is referenced by one and only one MINMAX_BOUND_LK.

Each STATE sometimes is referenced for facility location by one or more S1_FACILITY. Each STATE sometimes is referenced for owner location by one or more S1_FACILITY.

Each MINMAX_BOUND_LK always references one and only one COUNTY.

Each S1_EXEC_SUMMARY always is reported by one and only one S1_FACILITY.

Each S1_FACILITY_ADMIN always is reported by one and only one S1_FACILITY.

Each S1_EMERGENCY_PLAN always is reported by one and only one S1_FACILITY.

Each S6_ACDNT_HISTORY always is reported for one and only one S1_FACILITY. Each S6_ACDNT_HISTORY always is associated with one or more S6_ACDNT_CHEM. Each S6_ACDNT_HISTORY always references one and only one NAICS_LK.

Each S1_PROCESS always is one and only one of the following three subtypes: S1_PROGRAM_LVL_1, S1_PROGRAM_LVL_2, or S1_PROGRAM_LVL_3. Each S1_PROCESS always is reported by one and only one S1_FACILITY. Each S1_PROCESS

always is associated with one or more S1_PROCESS_CHEM. Each S1_PROGRAM_LVL_2 always is associated with one or more S1_PRG2_PRC_NAICS. Each S1_PROGRAM_LVL_3 always is associated with one or more NAICS. Each S1_PROGRAM_LVL_1 always is associated with one or more S1_PRG S1_PRG3_PRC_1_PRC_NAICS.

Each S1_PROCESS_NAICS always is one and only one of the following three subtypes: S1_PRG1_PRC_NAICS, S1_PRG2_PRC_NAICS, or S1_PRG3_PRC_NAICS. Each S1_PRG1_PRC_NAICS always is associated with one and only one S1_PROGRAM_LVL_1. Each S1_PRG2_PRC_NAICS always is associated with one and only one S1_PROGRAM_LVL_2. Each S1_PRG3_PRC_NAICS always is associated with one and only one S1_PROGRAM_LVL_3. Each S1_PROCESS_NAICS always references one and only one NAICS_LK. Each S1_PRG2_PRC_NAICS always has one or more S8_PREVENTN_PROG2. Each S1_PRG3_PRC_NAICS always has one or more S7_PREVENTN_PROG3.

Each NAICS_LK sometimes is associated with one or more S1_PROCESS_NAICS. Each NAICS_LK sometimes is referenced by one or more S6_ACDNT_HISTORY. Each NAICS_LK always is referenced by one and only one SIC_LK.

Each SIC_LK sometimes is referenced by one or more NAICS_LK.

Each S8_PREVENTN_PROG2 always is reported for one and only one S1_PRG2_PRC_NAICS. Each S8_PREVENTN_PROG2 always is associated with one or more S8_PREV_CHEM.

Each S7_PREVENTN_PROG3 always is reported for one and only one S1_PRG3_PRC_NAICS. Each S7_PREVENTN_PROG3 always is associated with one or more S7_PREV_CHEM.

Each S8_PREV_CHEM always is associated with one and only one S1_PRG2_PROC_CHEM. Each S8_PREV_CHEM always is associated with one and only one S8_PREVENTN_PROG2.

Each S7_PREV_CHEM always is associated with one and only one S1_PRG3_PROC_CHEM. Each S7_PREV_CHEM always is associated with one and only one S7_PREVENTN_PROG3.

Each S1_PROCESS_CHEM always is one and only one of the following three subtypes: S1_PRG1_PROC_CHEM, S1_PRG2_PROC_CHEM, or S1_PRG3_PROC_CHEM. Each S1_PROCESS_CHEM always is associated with one and only S1_PROCESS. Each S1_PROCESS_CHEM sometimes has one or more S2_TOXIC_WORST. Each S1_PRG2_PROC_CHEM sometimes has one or more S3_TOXIC_ALTER. Each S1_PRG3_PROC_CHEM sometimes has one or more S3_TOXIC_ALTER. Each

S1_PROCESS_CHEM sometimes has one or more S4_FLAMBL_WORST. Each S1_PRG2_PROC_CHEM sometimes has one or more S3_FLAMBL_ALTER. Each S1_PRG3_PROC_CHEM sometimes has one or more S3_FLAMBL_ALTER. Each S1_PRG2_PROC_CHEM sometimes is associated with one or more S8_PREV_CHEM. Each S1_PRG3_PROC_CHEM sometimes is associated with one or more S7_PREV_CHEM. Each S1_PROCESS_CHEM sometimes is associated with one or more S1_FLMBL_MIX_CHEM. Each S1_PROCESS_CHEM always references one and only one CHEMICAL_LK.

Each S2_TOXIC_WORST always is reported for one and only one S1_PROCESS_CHEM. Each S2_TOXIC_WORST sometimes is supported by one and only one GRAPHIC.

Each GRAPHIC sometimes supports one or more S2_TOXIC_WORST.
Each GRAPHIC sometimes supports one or more S3_TOXIC_ALTER.
Each GRAPHIC sometimes supports one or more S2_FLAMBL_WORST.
Each GRAPHIC sometimes supports one or more S2_FLAMBL_ALTER.

Each S3_TOXIC_ALTER sometimes is reported for one and only one S1_PRG2_PROC_CHEM.
Each S3_TOXIC_ALTER sometimes is reported for one and only one S1_PRG3_PROC_CHEM.
Each S3_TOXIC_ALTER sometimes is supported by one or more GRAPHIC.

Each S4_FLAMBL_WORST always is reported for one and only one S1_PROCESS_CHEM.
Each S4_FLAMBL_WORST sometimes is supported by one or more GRAPHIC.

Each S5_FLAMBL_ALTER sometimes is reported for one and only one S1_PRG2_PROC_CHEM. Each S5_FLAMBL_ALTER sometimes is reported for one and only one S1_PRG3_PROC_CHEM. Each S5_FLAMBL_ALTER sometimes is supported by one or more GRAPHIC.

Each S1_FLMBL_MIX_CHEM always is associated with one and only one S1_PROCESS_CHEM. Each S1_FLMBL_MIX_CHEM always references one and only one CHEMICAL_LK.

Each CHEMICAL_LK sometimes is associated with one or more S1_PROCESS_CHEM. Each CHEMICAL_LK sometimes is associated with one or more S6_ACDNT_CHEM. Each CHEMICAL_LK sometimes is associated with one or more S1_FLMBL_MIX_CHEM.

Each CHEM_STATE_LK always references one and only one STATE. Each CHEM_STATE_LK always references one and only one CHEMICAL_LK.

Each S6_ACDNT_CHEM always references one and only one CHEMICAL_LK. Each S6_ACDNT_CHEM always is associated with one and only one S6_ACDNT_HISTORY.

3.3 Function Entity Cross References

Cross referencing of functions to entities is useful for verifying the quality, completeness, and consistency of the RMP*Maintain ERD and the Function Hierarchy Diagrams for RMP*Submit, RMP*Maintain, and RMP*Info. Each function may perform (C)reate, (R)ead, (U)pdate, and (D)elete operations on the entities.

3.3.1 RMP*Submit Function Entity Cross References

The RMP*Submit Function Entity Cross Reference in Appendix H describes the create, read, update, and delete operations that each function will be granted for a specific data entity in the RMP*Submit database. The functions that provide the required capabilities allocated to RMP*Submit are shown in the RMP*Submit Function Hierarchy Diagram (Appendix E) and described in Section 2.1.1.

The Validation function (VALIDATE) in the cross reference is not decomposed to the same level of detail as it is in the Function Hierarchy Diagram. A single row titled *All validations* is used to represent all of the operations performed on entities by the validation subfunctions. These operations on each entity are nearly identical for each subfunction, so they were grouped to minimize duplication in the cross-reference.

A second cross reference is shown in Appendix I. This describes the operations of the RMP*Submit functions on the entities in the RMP*Maintain database.

3.3.2 RMP*Maintain Function Entity Cross Reference

Entities are listed in the left column, and functions are listed across the top row. The letter(s) at the intersection of each row/column indicates whether the function may create, read, update, or delete the entity in the corresponding row. Intersections that have no letter depicted do not use the entity. Subentities such as S1_PROGRAM_LVL_1 do not have letters depicted because the entity-function relationship was defined for the parent entity (S1_PROCESS) that the subentity inherits. Upper-level functions such as INFODB will not have letters depicted because actions are generally only defined for elementary functions at each function hierarchy's lowest level.

3.3.3 RMP*Info Function Entity Cross-Reference

The RMP*Info Function Entity Cross Reference is provided in Appendix K. The format of the cross reference and the arrangement of the subentities are the same as the RMP*Maintain cross-reference described in Section 3.3.2.

3.4 Data Flow Diagram

The Risk Management Plan Data Flow is shown in Exhibit 3. RMPlan data is obtained through three mechanisms: the RMP*Submit data entry tool, any commercial software package capable of producing the ASCII file format described in Appendix C, and paper submittals from sites that have been granted an electronic waiver. Transmission to the RMP*Maintain database occurs via U.S. Mail of diskettes or paper copy to EPA for validation and subsequent loading. Paper and diskette submittals will arrive with signed paper certifications. After the plan has passed validation and all manual data elements have been entered, the plan will be marked as complete and transferred to RMP*Info in the Envirofacts Oracle database via an automated refresh process. An E-mail will be automatically sent to the Listserver to notify subscribers that the information is available for public access through the World Wide Web (WWW).

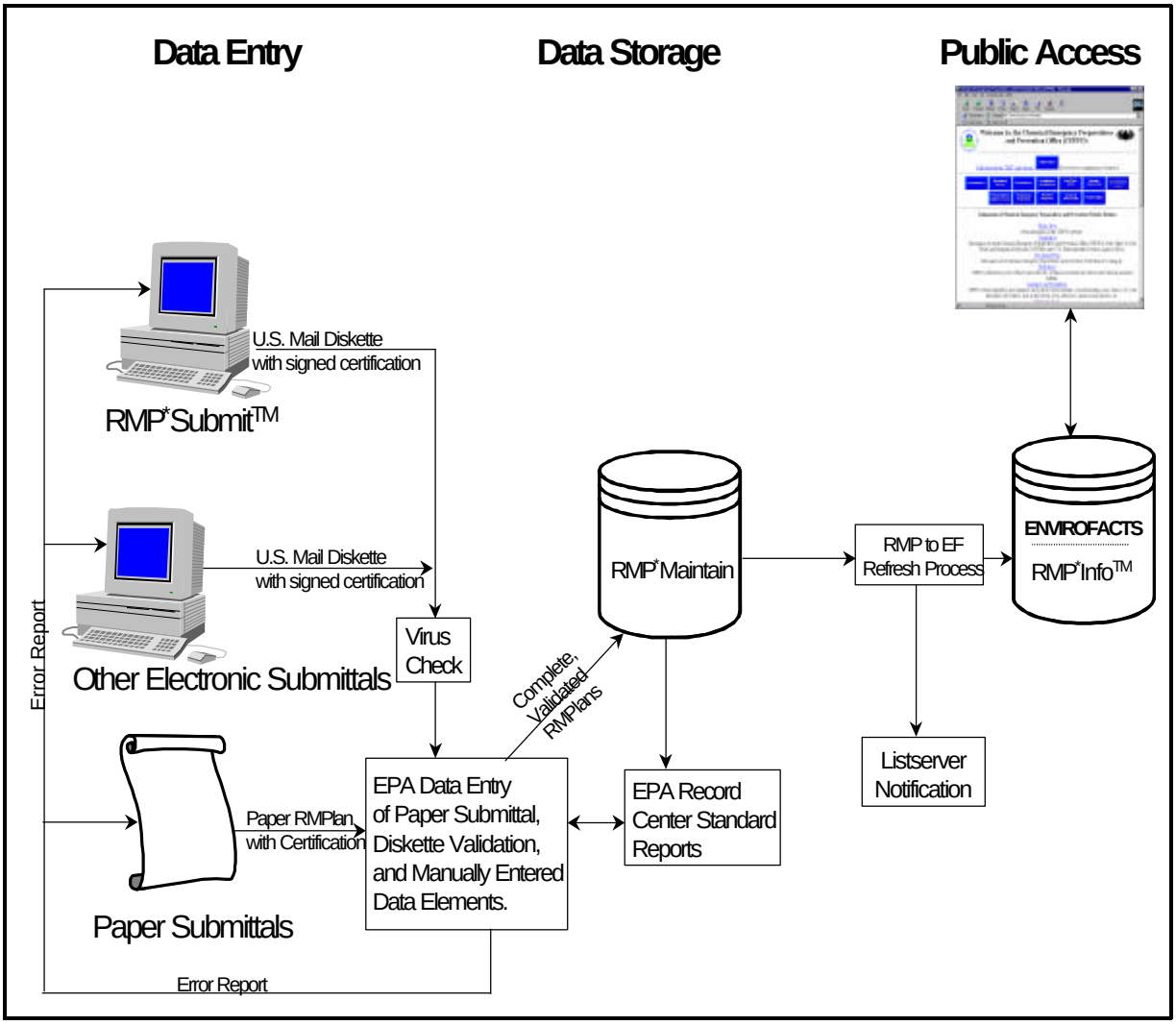

Exhibit 3. Risk Management Plan (RMPlan) Data Flow

3.5 Data Element Dictionary and Metadata

Data Element Dictionaries (DED) have been developed for both RMP*Submit and RMP*Maintain. It has not been determined whether RMP*Info will contain a subset of the information in RMP*Maintain; therefore, a separate DED for RMP*Info has not been developed.

Metadata is the textual description of each entity and attribute. These descriptions will be incorporated into the RMP*Info web pages during the Design Phase to assist the user in interpreting retrieval results and document the database on-line for the more advanced user.

3.5.1 RMP*Submit

The RMP*Submit Data Element Dictionary (DED) is provided in Appendix M. Descriptions of data elements shall be provided via the various on-line help functions.

3.5.2 RMP*Maintain

The RMP*Maintain DED is provided in Appendix N. The DED includes the attribute, its entity, if it is optional, type, length, default value, domain, domain values, and provides a text description of the attribute.

The Optional field specifies that the attribute may contain a value. An optional value of "True" means that the attribute is not required to contain a value. A Optional value of "False" means that the attribute is required to contain a value.

A domain is a method of defining multiple data attributes with a common rule. After the domain is defined, attributes may be assigned to that domain in lieu of specifying an individual definition for the attribute. If the domain definition changes, one only needs to modify the domain definition instead of modifying the definition of every attribute within that domain. In the DED, a domain section only appears for those attributes which are assigned a domain. For those attributes which are assigned a domain, the domain section follows the attribute to which it corresponds.

In the SRMP, domain values are specified as numeric ranges or lists of values. For numeric ranges, the Low Value field specifies the lowest value the attribute may possess, and the High Value field specifies the highest value the attribute may possess. For domains that are defined by a list of values, the Low Value field lists each value the attribute may possess and the High Value field is not applicable.

3.6 Validation Rules

Validation of input data and enforcement of SRMP system rules are performed at several levels. At the element level, RMP*Submit will validate attribute data type, length, optionality (whether an attribute is required or optional), and content according to the attribute definition in the DED. RMP*Maintain will implicitly validate data type and length because the database will not accept values that violate column definitions, but will not validate content. At the entity level, each entity relationship may be viewed as a validation rule which will be enforced by RMP*Submit during input of the RMPlan, re-checked by the CEPPO Records Center during processing, and re-enforced by RMP*Maintain through foreign key relationships when the logical model is physically implemented. Some RMPlan-level validation rules are too complex for definition at the entity-relationship level. Functions in RMP*Submit will also enforce these rules during input of the

RMPlan, and they will be re-checked at the CEPPO Records Center prior to loading the RMPlan(s) into RMP*Maintain.

3.6.1 RMP*Submit Validation

RMP*Submit will perform most of the validation of the RMPlan, report errors, and provide a correction mechanism. In conjunction with the entity relationship validations (Section 3.2.2), RMP*Submit will perform RMPlan-level validation which will specifically ensure that:

- There is one and only one Section 1 Executive Summary for each RMPlan.
- There is one and only one Section 1 Facility Registration for each RMPlan.
- For each Program Level 1 process, there is at least one Section 2 Toxics Worst Case Scenario or at least one Section 4 Flammables Worst Case Scenario for the toxic or flammable chemical responsible for the worst case scenario.
- No alternative release scenarios are permitted to be input for Program Level 1 processes.
- For an RMPlan reporting a Program Level 2 or Program Level 3 process containing a toxic chemical, there is at least one Section 2 Toxics Worst Case Scenario.
- For each unique toxic chemical or generic chemical category within a RMPlan reported by a Program Level 2 or Program Level 3 process, there is at least one Section 3 Toxics Alternative Release Scenario.
- For each RMPlan reporting a Program Level 2 or Program Level 3 process containing flammable chemicals, there is at least one Section 4 Flammables Worst Case Scenario and at least one Section 5 Flammables Alternative Release Scenario.
- There is at least one Section 7 Prevention Program for each NAICS code reported by a Program Level 3 process.
- There is at least one Section 8 Prevention Program for each NAICS code reported by a Program Level 2 process.
- There is one and only one Section 9 Emergency Response Plan for each RMPlan.
- Validation requirements are relaxed for required attributes that may contain CBI data when an entity is declared to contain CBI data.

- There is no more than one Graphic reported for each Section 2, 3, 4, or 5.

3.6.2 RMP*Maintain Validation

After physical implementation of the data model into tables, Oracle will implicitly perform partial validation of entity attributes because it will not allow an insertion or update of a column that does not match the column's data type and length specifications. Except for lookup table validations, RMP*Maintain will not validate attribute content beyond this basic function. Also, after physical implementation, RMP*Maintain will enforce the data model normalization (Section 3.2.2) through table foreign key constraints. RMP*Maintain will not re-perform the RMPlan-level (Section 3.6.1) validations.

3.7 Lookup Tables

RMP*Submit will maintain, or have access to, several lookup tables which will not be used to store RMPlan data, but will contain static lookup information to be used to validate the entities that refer to them. For example, facility latitude/longitude data will be verified within state and county boundaries by looking up information in the MINMAX_BOUND_LK table. CHEMICAL_LK, CHEM_STATE_LK, NAICS_LK, SIC_LK, LEPC_LK, and MINMAX_BOUND_LK will be maintained by RMP*Maintain. LDIP_COLLECT_MTH_LK, LDIP_DESC_CAT_LK, COUNTY, and STATE will be maintained by the Envirofacts data base.

3.8 Data Management Plan

The purpose of the Data Management Plan is to address the procedure by which the system records will be created, maintained, used, and archived in the manner consistent with the records schedule that has been drafted for the SRMP.

3.8.1 Data Creation, Maintenance, and Use

RMP data will be created using RMP*Submit or other commercial software capable of producing the ASCII file as described in Appendix C. The data will be created by the estimated 64,000 facilities subject to the regulation based on the quantity of regulated substances they have on-site. These facilities will be required to implement an RMP and submit a RMPlan to a central facility within EPA. In the case of hard copy submission, EPA will enter the data into RMP*Submit. EPA will be responsible for maintaining the RMPlan data. The RMPlan data will be used by state and local governments responsible for chemical emergency preparedness and prevention. Environmental and community organizations and the public can use the data to better understand the chemical risks in their communities. The data will be used by EPA to set priorities, target resources, and measure the success of the RMP in accordance with the Government Performance and Results Act (GPRA).

3.8.2 Archive Process

RMP* Maintain shall not preclude the archiving of data at the National Archives and Records Administration (NARA). After 15 years, EPA will archive the RMPlan data with the Center for Electronic Records at NARA. RMPlan data will be transferred to NARA in accordance with NARA Regulation 36 CFR Subpart J—"Transfer of Records to the National Archives," Part 1228.188 "Electronic records." The regulation states that agencies must transfer electronic records to the National Archives either on open reel magnetic tape or on tape cartridges. Open reel magnetic tape must be on one-half inch 7 or 9 track tape reels recorded at 800, 1600, or 6250 bpi. Tape cartridges shall be 18 track 3480-class cartridges recorded at 37,871 bpi. The data must be written in ASCII or EBCDIC with all extraneous control characters removed from the data (except record length indicators for variable length records, or marks designating a datum, word, field, block or file), blocked at not higher than 32,760 bytes per block. The open reel magnetic tapes or the tape cartridges on which the data are recorded must be new or re-certified tapes which have been passed over a tape cleaner before writing and must be rewound under controlled tension.

Documentation adequate for servicing and interpreting the RMPlan data must be transferred with the data. This documentation must include, but not necessarily be limited to completed NARA Form 14097, Technical Description for Transfer of Electronic Records, or its equivalent. Where it has been necessary to strip data of its extraneous control characters the codebook specifications defining the data elements and their values must match the new format of the data. Guidelines for determining adequate documentation may be obtained from the Office of Records Administration, National Archives and Records Administration, Washington, DC 20408.

Agencies are authorized to transfer CD-ROMs which include fielded data files or text files scheduled to be preserved in the National Archives that are:

- In conformance to the International Standards Organization (ISO) 9660 standard.
- In compliance with the ASCII standard as defined in the Federal Information Processing Standard 1-2 (11/14/84).
- Not dependent on control characters or codes which are not defined in the ASCII character set.
- Not compressed unless the software to decompress the files is provided.
- Individually addressable.
- In compliance with the documentation requirements of 36 CFR 1228.188.

Agencies should transfer the CD-ROMs with the necessary documentation for those files that are to be accessioned into the Center for Electronic Records.

4.0 INITIAL CONFIGURATION ACCOUNTING RECORDS

Configuration Management (CM) serves to systematically identify the characteristics of a system, known as Configuration Items (CI), and formally control any changes or additions to those CIs. CM helps maintain the integrity of the system throughout its life cycle and facilitates communication about the system among project team members, users, and other supporting organizations.

This section addresses the control and accounting of changes to the software, documentation, and databases of the SRMP. It also provides a basic approach applied to all current and future tasks associated with the SRMP project. When new tasks are initiated under the SRMP project, the development team implements the CM methodology and procedures outlined in this section. Some variation of this plan may occur for individual tasks, depending on the size and the nature of the software work product, but the development team nonetheless follows the basic methodology.

4.1 System Overview

The SRMP consists of three components: RMP*Submit for data entry and validation; RMP*Maintain for data processing and validation; and RMP*Info for public access to RMPlan information. The Oracle database has been selected for RMP*Maintain and RMP*Info; as such, the user interface components for RMP*Submit and RMP*Info must facilitate interfacing with Oracle from the code design perspective.

The SRMP development team is implementing the SRMP, utilizing Microsoft Access, Oracle Designer/2000, and Oracle Designer/2000 Web Generator.

The regulated facilities will submit RMPlan data using either the RMP*Submit data entry tool or a commercial software package capable of producing the ASCII file, in accordance with the format in Appendix C, and paper copy from sites that have been granted an electronic waiver. Transmission to the RMP*Maintain data storage system occurs via U.S. Mail of diskettes or hard copy. The received information is processed prior to loading into RMP*Maintain.

4.2 Configuration Management Organization

Several organizations and organizational levels within the Systems Development Center (SDC) participate in the combined CM efforts for the SRMP project. Many of the responsibilities of personnel during and after development have an impact on CM. The following play a role in SRMP: Product Development Organization, Product Assurance (PA) Organization, SDC Technical Support Center (TSC), and the Change Control Board (CCB).

4.2.1 Product Development Organization

Product development for the SRMP includes the following key personnel:

- Management.
  - Mission Oriented Systems Engineering Support (MOSES) Program Manager (PM).
  - Development and Maintenance Methodology Group (DMMG) Director.
  - Assistant PM (APM).
  - Technical Project Leader (TPL).
- SRMP CM Librarian.
- Functional Leads.
- Developers.
- Integration Testers.
- Production Control/User Support.
- Technical Writers.

During the SRMP development process, several members of the product development team may share roles and certain roles may overlap.

4.2.1.1 Management

The MOSES PM, DMMG Director, APM, and TPL perform management functions for the SRMP project.

The MOSES PM is responsible for all work accomplished at the SDC. As such, the PM is responsible for ensuring that work is accomplished at the SDC using "best engineering efforts," which includes the following regarding SDC CM practices:

- Ensures that APMs integrate the CM practices set forth in the SDC CM guidelines into the DOs under their supervision.
- Ensures that adequate resources are allocated in the DO Project Plan and associated PA plan to perform CM in accordance with these guidelines. Coupled with this responsibility is the responsibility for assuring that, in accordance with SDC independent PA policy, the SDC PA Organization be assigned the delivery order (DO) CM task, unless the Deliver Order Project Officer (DOPO) has notified the PM otherwise.
- Ensures that SDC DOs comply with the CM practices set forth in the CM guidelines.
- Communicating the details of SDC CM practices to CEPPO within OSWER and other EPA organizations as directed by CEPPO.
- Disseminates information about what constitutes acceptable and unacceptable interpretations of the CM guidelines to SDC management (i.e., DMMG Director, PA Manager, APMs) and SDC Development Team management (i.e., TPLs).

The DMMG Director performs the following regarding the CM practices set forth in the SDC CM guidelines:

- Coordinates with the PA Manager to assure that PA-developed CM instructions carry through the intent of the guidelines.
- Audits or otherwise examines SDC DOs to determine DO compliance with the guidelines and reports findings to the PM.
- Assists TPLs, in coordination with the PA Manager, with adapting the guidelines to their DOs (e.g., change control form design, change management process definition).
- Provides training to SDC and EPA staff regarding CM practices.

The APM assists the TPL in coordination efforts between the EPA client, the PM, other SDC management staff, SDC PA staff, and the SRMP project team. The APM's CM role includes:

- Actively supports the CM practices by (1) assuring that the contents of the SDC CM guidelines are assimilated by all projects within the scope of the APM's responsibility, and (2) promoting the practices of the SDC CM guidelines with SDC customers.
- Provides direction and guidance to TPLs to support implementation of SDC CM practices.
- Interacts directly with designated PA Analysts responsible for CM throughout the development effort as defined by the SRMP Project Plan and the SRMP PA Plan.

The TPL manages the overall execution of the CM process during the period of performance for the SRMP project. The TPL works in close coordination with all members of the development team and PA staff to ensure synchronization between tasks. The TPL is responsible for all contractual aspects of the SRMP project. The TPL manages and directs the product development organization, provides day-to-day technical leadership and guidance to team members, and ensures that the SRMP project is accomplished successfully in terms of technical performance, schedule, and cost. As the primary point-of-contact in the SDC for the DOPO, the TPL chairs the CCB, follows up on CCB meetings.

TPL CM roles and responsibilities include the following:

- Actively supports the CM practices by (1) ensuring that its contents are assimilated by all projects within the scope of the TPL's responsibility, and (2) promoting its practices with SDC customers.
- Provides required direction and guidance to the SDC Development Team to support implementation of the CM practices.
- Interacts directly with designated PA Analysts responsible for CM throughout the development effort as defined by the Project Plan and the SRMP PA Plan.

- Reports in writing to the responsible APM, MOSES PM, and the EPA MOSES Technical Manager (TM) all instances when the scope of the Project Plan's or PA Plan's CM practices might be reduced.

4.2.1.2 SRMP CM Librarian

The SRMP CM Librarian performs the following actions regarding CM practices:

- Prepares SRMP CM Plan and procedures to establish the CM processes that are tailored to the SRMP project.
- Ensures that the project team members are aware of the project CM Plan and procedures and that the documented CM process is followed.
- Assists Functional Leads in establishing and maintaining baselines.
- Manages the tracking of all system enhancements, change requests, and releases.
- Tracks the implementation of all Change Requests (CR) and documentation issues proposed for a particular release through the CR Tracking System.
- Controls and tracks deliverable documentation, correspondence, and software.
- Implements and maintains the CM Plan.
- Provides metrics from the CR Tracking System and other sources to the TPL.
- Maintains the SRMP project library for deliverable software, documentation, and correspondence; ensuring that SRMP project files are maintained to SDC standards.
- Coordinates with the TPL and other SRMP project team members to ensure proper input to the CR Tracking System.
- Generates reports, as necessary, to support CCB meetings, monthly status assessments, release planning sessions, and configuration status audits.
- Maintains a historical record of all system changes associated with specific releases.
- Provides input for Release Notes.

4.2.1.3 Functional Coordinator

The Functional Coordinator is responsible for ensuring that changes due to revised requirements or technical errors are consistent throughout the SRMP component applications. The Functional Coordinator's CM responsibilities include:

- Reviewing CRs to determine whether they have been distributed to the necessary Functional Leads.
- Performing audits on software and documentation prior to and after installation of the software.
- Compiling software release notes.

Microsoft Access Lead

The SRMP team will develop RMP*Submit using Microsoft Access. One lead is responsible for the baseline and CM of this application.

Oracle Lead

Executable Oracle Data Definition Language (DDL) is used to build database tables, indexes, and some Referential Integrity (RI). The Oracle RMP*Maintain tables will reside on a Microsoft Windows NT server. The lead for this area is responsible for the baseline and CM of the Oracle DDL.

Documentation Lead

The Documentation Lead is responsible for ensuring that information on changes made to the SRMP applications is incorporated appropriately in the hardcopy and on-line documentation. The Documentation Lead's CM responsibilities include:

- Review all CRs incorporated in a release to ensure they are reflected in the documentation.
- Maintain electronic copies of baselines for all deliverable documents.
- Control access to deliverable documents.

4.2.1.4 Developers

Developers create new or modify existing capabilities in working with graphical user interface (GUI) items, procedures, logic modules, or other objects. Developers also perform the following CM responsibilities:

- Control the baseline of the Designer/2000 applications. One developer will be responsible for the CM of the Designer/2000 application baseline. The methods and tools that will be used for the CM of the Designer/2000 application baseline are currently under analysis by the SRMP project team.
- Assist in the review and analysis of additional requirements and trouble reports in the Change Request (CR) Tracking System.
- Perform unit testing for all software units. Testing begins at the lowest level (unit) and, as tests are successfully executed, proceeds to higher levels. Testing includes software component testing and software CI testing.
- Provide input to the CR Tracking System regarding development activities and associated tracking data for specific change requests.
- Perform peer reviews. Types of peer reviews include requirements reviews, design reviews, code walkthroughs, test materials reviews, publication reviews, and training materials reviews.
- Coordinate SDC Procedure 1 review and approval associated with software releases.

- Manage and/or assist in the development of deliverable software documentation for releases and development of milestone documents.
- Assist in developing Release Notes and installation packages.

4.2.1.5 Integration Testers

Integration Testers perform testing of various components (after successful development and unit testing) to determine compliance with design specifications and impact on previously established system functionality. Integration testers also perform the following CM responsibilities:

- Develop integration test plans that outline each area of the system to be tested, and the specific system requirements that they validate.
- Perform integration testing by executing each test plan in order to validate all system requirements and system functionality they affect.
- Notify the CM Librarian to update the CR Tracking System when a CR has passed integration testing and is ready for PA acceptance testing.
- Notify the CM Librarian to update the CR Tracking System when specific software functions do not operate as specified in the requirements, or when the tester identifies other errors or software anomalies.
- Assist in developing Release Notes and installation packages.

4.2.1.6 Technical Writers

The Technical Writer manages the production of system documentation including system manuals, users' guides, pamphlets, briefings, on-line help, etc. The Technical Writer also performs the following CM responsibilities:

- Coordinates with CM Librarian to maintain an accurate and updated documentation library.
- Incorporates changes in documentation based upon specifications provided through the CR process.
- Gives technical guidance and style direction to other team members who prepare deliverable documentation.
- Tracks the movement of system documentation through the SDC Procedure 1 review process.
- Ensures that hard and electronic copies of system documentation are on file in the SDC SRMP project files.
- Notifies the CM Librarian to update the CR Tracking System regarding documentation and associated tracking data for specific change requests.

4.2.2 Product Assurance Organization

The PA Manager is the SDC person responsible for providing either direct CM support or CM PA support to every SDC Development Team. In accordance with the DO, the PA Manager provides support to each team by assigning PA Analysts with the appropriate CM skills. The PA Manager reports directly to the MOSES PM and performs the following actions regarding SDC CM practices:

- Implements the SDC CM guidelines on each SDC DO unless otherwise directed by the PM. This responsibility includes providing guidance and/or recommendations to the MOSES PM regarding the state of CM practices on SDC DOs. This responsibility also includes supervising the development of the SRMP PA Plan that, among other things, calls for the development of a CM Plan specifying this approach.
- Supervises (or delegates supervision of) the day-to-day activities of the PA personnel that perform CM and other PA activities.
- Develops and maintains PA Instructions (PAI) defining CM procedures.
- Develops and maintains PAIs defining CM process review and audit procedures.
- Provides a PA Organization that performs the PA processes of Quality Assurance (QA), Verification and Validation (V&V), Test and Evaluation (T&E) Acceptance Testing, and CM.
- Provides the MOSES PM with a semi-annual report on SDC PA activities, which includes CM activities.
- Interacts directly with APMs and TPLs on CM matters.
- Maintains effective cost/schedule control of the agreed-upon PA resources for each DO, which includes resources for CM support.

PA Analysts perform the following actions regarding SDC CM practices:

- Performs as the SRMP CM Librarian.
- Assist with and coordinates the development of CM requirements that are tailored to a specific project.
- Coordinate the implementation of CM requirements with the TPL.
- Monitor and audit CM practices on SDC projects in accordance with the SDC CM guidelines, unless the EPA TM has notified the PM otherwise.
- Serve as the liaison to SDC PA management for project CM activities.
- Implement resolution processes that require upper management involvement when CM practices cannot be followed at the product development level.

4.2.3 SDC Technical Support Center

The SDC TSC establishes and maintains SRMP project files that serve as repositories for SDC deliverables, including SRMP project deliverables.

The TSC also provides technical editing, graphics production, schedule chart preparation for deliverables, and final production of deliverables. The TSC assigns a Product Control Number (PCN) in order to identify a software or documentation product throughout the software development life cycle. When work begins on a product or documentation, the principal author contacts the TSC to obtain a unique PCN.

4.2.4 Change Control Board

At all times, the flow of the change forms is under control of CM and is directed by the CCB. The Configuration Lead documents all CRs and TIRs and passes them to the DOPO in the CCB. The DOPO, in consultation with the CCB attendees (which include team members, the TPL, the PA Analyst, and the Alternate Delivery Order Project Officer (ADOPO)), reviews the CRs and TIRs to determine dispositions and set priorities for implementation. Through the CCB, the SRMP team and the DOPO control modifications and enhancements to the system, trace product development, facilitate the alignment of DOPO and TPL expectations, and establish an audit trail that elevates product development to an accountable process.

The CM Lead enters pertinent information from the CR form into a Microsoft Access system, which serves as a reference tool for keeping a summary log of CRs. The Configuration Lead distributes the CR Summary Log to the Project Team for them to complete the requested modifications to the software, documentation, and/or databases. The Microsoft Access tool can be used to view CRs and TIRs on-line.

The TPL presents the CR Summary Log to the DOPO at CCB meetings in order to review, modify, and close the status of the CRs. Any changes to the CR Summary Log from a CCB are updated based on these discussions.

4.3 Configuration Status Accounting

Configuration status accounting records the activities associated with configuration identification, configuration control, and configuration auditing. Status accounting reports provide the status of individual configuration items (such as software, documentation, and other controlled materials). The reports are generated at the end of the software release cycles and periodically when event driven. Configuration status accounting on the SRMP project is accomplished through the centralized control of deliverable products, the use of the Document Control Center to maintain a

listing of document activity associated with the DO, the proper recording of CCB actions in the CCB minutes, and a quarterly CM Status Report. Examples of recorded significant events include:

- Completion of development of a product and its introduction to the PA process.
- Completion of testing.
- Recording of changes in CRs and TIRs as a result of an audit.
- Analyses of recommended changes.
- CCB minutes that includes decisions made regarding changes.
- Completion of approved changes to a product.
- Delivery of a product to the DOPO.

4.4 Configuration Audits

Configuration audits confirm the proper working of the CM function and help ensure that system documentation is complete and current. Before the Project Team delivers a new software release, they validate the software configuration against requirements. This validation is accomplished under the PA V&V function. Configuration validation checks ensure that whatever is intended for each component of a software configuration, as specified in the baseline, is actually achieved.

PA also captures and analyzes data at critical points in the CM process to determine the status and adequacy of CM activities. This data helps ensure that the CM of objects to and from the Oracle Web Server is functioning properly.

PA Analysts are responsible for verifying the SRMP project's conformance to the CM Plan and CM procedures. This verification is done through QA audits of individual products, process audits, and any required formal functional and physical configuration audits of the SRMP software. PA Analysts conduct these audits of SRMP software and related products. Three types of formal PA audits associated with CM are CM Process Audit, Configuration Baseline Audits, and Project Closeout Audit. Sources used to conduct these audits include the SOW, Project Plan, PA Plan, CCB Minutes, Work Requests, TSC Document Control Register, SDC SEE Elements, SDC PA Operations Guide, SDC PA Internal Audit Checklists.

4.4.1 CM Process Audit

PA will conduct CM Process Audits to ensure that the SRMP project is following the CM activities described in this plan. PA will notify the TPL by letter of the impending audit and will provide a copy of the audit checklist with the notification letter. The CM Audit Checklist in PAI-070 serves as a guide for PA analysts to conduct this type of audit. In coordination with the TPL, the PA analyst will complete the checklist during the audit. The PA Analyst will review the findings with the TPL, and together they will decide on an action plan to improve the process and

bring to closure all outstanding items not in compliance. The PA Analyst will also write an audit report using the standardized SDC format and make this report available to the TPL.

4.4.2 Configuration Baseline Audits

The CM Librarian will periodically audit the configuration baselines for the SRMP. This consists of configuration V&V. Configuration verification consists of checking that the intention for each component of a software configuration in one baseline is achieved in the succeeding baseline. Configuration validation ensures that the software configuration is congruent with software requirements.

4.4.3 Project Close-Out Audit

PAI-140 in the SDC PA Operations Guide contains step-by-step instructions for supporting the project close-out activities. In coordination with the TPL, PA analysts will audit the deliverables using the Deliverable Table in the current PA Plan and the Interoffice Memorandum from the MOSES Contract Manager dated October 11, 1993. Attached to this memo is a checklist of items that PA analysts will verify during project closeout audit. The PA analyst will prepare a closeout Audit Report and provide a copy to the TPL. PAI-140 shows a sample format for this report and provides step-by-step procedures for project Closeout audits. PA analysts will provide the TPL with a project close-out file that contains all important records (e.g., DIRRs, Test Certification Statements) to include an inventory by PA during the period of performance of the project.

4.4.4 Schedule

The PA Analyst will conduct CM baseline audits periodically. Formal review and configuration audits will be conducted as discussed in the PA Plan.

5.0 SECURITY

The sections that follow identify the security issues associated with each part of the SRMP: RMP*Submit, RMP*Maintain, and RMP*Info. Compliance with EPA Information Resource Management Manual Directive 2100 is inherent in the design and the use of the Oracle database. The focus here will be on the security issues and organizational responsibilities associated with the Design through Implementation phases of the OSWER life cycle.

From the System Concept, the security requirement for SRMP is that it shall provide for the contingency that some information may need controlled access management.

This applies to RMP*Maintain and RMP*Info as these components involve management of data and user access. RMP*Submit is a standalone data entry tool and as such has no security requirements. Both components are Oracle-based. RMP*Maintain will reside inside the EPA firewall at the CEPPO Records Center on a Microsoft Windows NT server. RMP*Info will reside outside the EPA firewall at RTP on a DEC Alpha computer known as Mountain. The DEC Alpha uses a UNIX based operating system and is therefore subject to the practices and procedures set forth in the ETSD Operational Directive 200.03 on UNIX security. ETSD is currently in the process of preparing the standard configuration document for Windows NT servers attached to the EPA backbone.

5.1 Security Organization and Procedures

It is required that the database administrator (DBA) for RMP*Maintain enforce data access rights for users at the following levels: Read, Write, Update, and Delete. These access rights will be maintained through the Oracle capabilities for granting user specific rights and using roles to manage groups of users with similar privileges. Throughout the Design and Implementation (creation of the beta SRMP), the SDC SRMP team will be responsible for the enforcement of user access rights.

All users will be assigned the role of "CONNECT." This role provides all the privileges necessary for all general users of the system. The SDC development team will be granted the role of "RESOURCE" to allow table/row create, update, and delete permissions. There will be one member of the development team assigned to the role of DBA. This individual will be responsible for establishing and maintaining users and privileges. Once SRMP becomes a production system it is anticipated that ETSD will provide an application DBA as a Technical Consultant (TC) for RMP*Maintain. As of this writing, no ETSD Operational Directive has been established regarding Oracle RDBMS security.

5.2 Assigning User Accounts and Passwords

Operating system level accounts for the DEC Alpha are obtained through use of the Time Sharing Services Management System (TSSMS). This is a mainframe based system which ensures that a unique ID is created for each user. The EPA Automated Data Processing (ADP) co-ordinator in the EPA Office/Region/Lab is responsible for initiating this process in response to user requests.

It is important to note that, as of this writing, the TSSMS process has not been adopted for Oracle accounts and that an operating system account is not necessary for connecting to an Oracle database. At present, EPA users requiring an Oracle account simply call ETSD user support and request one. Information for WCF charging must be provided at the time the account is requested. This is the procedure that is expected to be followed for EPA users wishing access to RMP*Maintain within the CEPPO Records Center. At their discretion, CEPPO may choose to

implement a pre-approval process, and therefore act as intermediary between the user community and ETSD user support.

Access by the public to RMP*Info will follow the Envirofacts (EF) model. One userid/password will be used for all Web-based access. EF publishes this userid/password combination on the Web site to enable advanced users to query the Oracle information through means other than the Web. Throughout the Design and Implementation (creation of the beta SRMP) Phases, the SDC SRMP team will be responsible for the rights assigned to the "public" userid. Once the beta SRMP is released, it is anticipated that ETSD will provide an application DBA as a TC for RMP*Info.

APPENDIX A

Terms and Abbreviations

ADOPO	Alternate Delivery Order Project Officer
ADP	Automated Data Processing
APM	Assistant Program Manager
ASCII	American Standard Code for Information Interchange
CAS	Chemical Abstract Service
CBI	Confidential Business Information
CCB	Change Control Board
CEPPO	Chemical Emergency Preparedness and Prevention Office
CFR	Code of Federal Regulations
CI	Configuration Item
CM	Configuration Management
CR	Change Request
DBA	Database Administrator
DDL	Data Definition Language
DEC	Digital Equipment Corporation
DED	Data Element Dictionary
DIRR	Data Item Review Record
DMMG	Development and Maintenance Methodology Group
DO	Delivery Order
DOPO	Delivery Order Project Officer
DUNS	Dun and Bradstreet number
EBCDIC	Extended Binary Coded Decimal Interchange Code
EF	Envirofacts, Data Warehouse of EPA Environmental Information
EPA	Environmental Protection Agency
ERD	Entity Relationship Diagram
ETSD	EPA Technology Services Division
FTP	File Transfer Protocol
GB	Gigabytes
GPRA	Government Performance and Results Act
GUI	Graphical User Interface
HTML	HyperText Markup Language
IRM	Information Resources Management
ISO	International Standards Organization

MOSES	Mission Oriented Systems Engineering Support
NAICS	North America and Industry Classification System
NARA	National Archives and Records Administration
OSWER	Office of Solid Waste and Emergency Response
PA	Product Assurance
PAI	Product Assurance Instructions
PCN	Product Control Number
PM	Program Manager
QA	Quality Assurance
RDBMS	Relational Database Management System
RI	Referential Integrity
RMP	Risk Management Program
RMPlan	Risk Management Plan
RTP	Research Triangle Park
SDC	Systems Development Center
SEE	Systems Engineering Environment
SOW	Statement of Work
SRMP	System for Risk Management Plans
TC	Technical Consultant
T&E	Test and Evaluation
TIR	Test Incident Report
TM	Technical Manager
TPL	Technical Project Leader
TSC	Technical Support Center
TSSMS	Time Sharing Services Management System
UNIX	Multi-user operating system
V&V	Verification and Validation
WCF	Working Capital Fund
WWW	World Wide Web

APPENDIX B

Requirements Traceability Matrix (RTM)

APPENDIX C

ASCII File Format

1.0 Executive Summary

The owner or operator must provide one executive summary for each facility. The executive summary should include a brief description of the following elements: the accidental release prevention and emergency response policies at the stationary source; the stationary source and regulated substances handled; the worst case release scenario(s) and the alternative release scenario(s), including administrative controls and mitigation measures to limit the distances for each reported scenario; the general accidental release prevention program and chemical-specific prevention steps; the five-year accident history; the emergency response program that has been coordinated with the community plan; and the planned changes to improve safety. The maximum size of this record is unlimited.

Field	Length	Type	Format	Required?	Description
RMP Facility ID	7	Text	XXNNNNN, where XX = facility's state abbreviation and NNNNN will be a number	Y	Unique facility identifier assigned by RMP*Maintain.
EXECUTIVE SUMMARY	Unlimited	Text		Y	The executive summary includes the following contents: 1) Policy–Description of accidental release prevention and emergency response policies, 2) Regulated Substances–Description of regulated substances handled, including primary activities, use of regulated substances and quantities handled or stored, 3) Worst-case and alternative release scenarios, 4) Prevention Program–Accidental release prevention program and chemical-specific prevention steps, 5) Summary description of 5-year accident history, 6) Emergency Response Program–Description of emergency response program including any public notification and alert systems, and 7) Planned changes to improve safety.

2.0 Registration

A single registration section is required for the entire facility. This section covers all regulated substances handled in covered processes.

2.1 Facility

This section is required for all facilities. The maximum size of this record is 993 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S1FACILITY	10	Text		Y	Identifier for the destination table. Must be "S1FACILITY"
RMP Facility ID	7	Text	XXNNNNN, where XX = facility's state abbreviation and NNNNN will be a number	Y	Unique facility identifier assigned by RMP*Maintain.
Software used to input RMP information	50	Text		N	Indicates which RMP software was used to develop the plan.
Version number of software used to input RMP information	15	Text		N	Indicates which version of RMP software was used to develop the plan.
OSHA Star or Merit	1	Text		N	A stationary source with a Star or Merit ranking under OSHA's voluntary protection program shall be exempt from audits under paragraph (b)(2) and (b)(7) of [section 68.220 - audits].
Parent company name 1	35	Text		N	First Parent Company Name
Parent company name 2	35	Text		N	Second Parent Company name for joint ventures.
Facility name	35	Text		Y	Facility name specific to the site.
Facility street - line 1	35	Text		Y	Facility Street - Line 1 using local street and road designations. No post office box numbers or rural box numbers. This is not the mailing address.
Facility street - line 2	35	Text		N	Facility Street Address - Line 2
Facility city	19	Text		Y	City in which the facility is located.
Facility state	2	Text		Y	Facility FIPS State abbreviation.
Facility ZIP code	9	Text		First 5 digits are required. Plus 4 extension is optional.	ZIP Code plus four-digit extension for the facility

Field	Length	Type	Format	Required?	Description
Facility county	3	Text		Y	Federal Information Processing Standard (FIPS) code for the county in which the facility is located.
LEPC	30	Text		Y	Local Emergency Planning Committee associated with the facility county. For LEPC information refer to the LEPC/SERC Net Web site at http://www.RTK.NET:80/lepc
Facility latitude (degrees, minutes, decimal seconds)	12	Text		Y	Facility Latitude (+/-DDMMSS.SSSS) where D=degrees, M=minutes, S=seconds, + = North, - = South of the equator. This is the alternate representation of hemispheric information (ANSI X3.61-1986 and FIPS 70). Points on the equator are assigned to the Northern Hemisphere.
Facility longitude (degrees, minutes, decimal seconds)	13	Text		Y	Facility Longitude (+/-DDDMMSS.SSSS) where D=degrees, M=minutes, S=seconds, + = East, - = West of the prime meridian. This is the alternate representation for hemispheric information (ANSI X3.61-1986). A point on the Prime Meridian is Eastern Hemisphere; the 180th meridian is Western.
Facility latitude (decimal degrees)	10	Text		Y	Facility Latitude (+/-DD.DDDDDD) where d=degrees, + = North, - = South of the equator. This is the alternate representation of hemispheric information (ANSI X3.61-1986 and FIPS 70). Points on the equator are assigned to the Northern Hemisphere.
Facility longitude (decimal degrees)	11	Text		Y	Facility Longitude (+/-DDD.DDDDDD) where d=degrees, + = East, - = West of the prime meridian. This is the alternate representation for hemispheric information (ANSI X3.61-1986). A point on the Prime Meridian is Eastern Hemisphere; the 180th meridian is Western.
Method	2	Text		Y	Code representing method used to obtain latitude/longitude data.
Description	2	Text		Y	Code for the physical place corresponding to the coordinate.
Facility or parent company homepage web address	100	Text		N	Facility or Parent Company homepage web address.
Facility phone number	10	Text		N	Facility phone number for public inquiries to contact owner, 112(r) person responsible, etc.

Field	Length	Type	Format	Required?	Description
Facility E-mail address	100	Text		N	Facility E-mail address.
Facility Dun and Bradstreet Number	12	Text		N	Facility Dun and Bradstreet Number. This is an identification number that allows a business to be cross-referenced to various business information. Not all sources will have a D&B number.
Parent company Dun and Bradstreet number 1	12	Text		N	First Parent Company Dun and Bradstreet Number
Parent company Dun and Bradstreet number 2	12	Text		N	Second Parent Company Dun and Bradstreet Number.
Owner/operator name	35	Text		Y	Name of the person who owns or operates the facility. (Highest ranking company executive onsite.)
Owner/operator phone	10	Text		Y	Phone number for the Owner/Operator Phone.
Owner/operator street - line 1 (mailing address)	35	Text		Y	Business street mailing address for the Owner/Operator Line 1
Owner/operator street - line 2 (mailing address)	35	Text		N	Business street mailing address for the Owner/Operator Line 2
Owner/operator city	19	Text		Y	City for the business mailing address for the Owner/Operator.
Owner/operator state	2	Text		Y	FIPS State Abbreviation for the business mailing address of the Owner/Operator.
Owner ZIP	5	Numeric		Y	ZIP Code for the business mailing address of the Owner/Operator.
Owner ZIP + 4 extension	4	Numeric		N	ZIP Code 4-digit extension for the business mailing address of the owner/operator.
Person/position responsible for RMP implementation	35	Text		N	Person/Position responsible for RMP implementation (40 CFR Part 68). Not applicable to facilities with only Program Level 1 processes.
Title of person/position for RMP implementation	35	Text		Y	Title of person/position for RMP implementation (40 CFR part 68)
Emergency contact name	35	Text		Y	Name of person designated as the emergency contact for the facility.
Emergency contact title	35	Text		Y	Title or job classification of the emergency contact.

Field	Length	Type	Format	Required?	Description
Emergency contact phone	10	Text		Y	Phone number where the emergency contact can be reached during normal working hours.
Emergency contact phone extension/PIN	10	Text		N	Phone extension or pager number for the emergency contact.
24-hour phone	10	Text		Y	Number where emergency contact can be reached during non-working hours.
Number of full-time employees (FTEs)	5	Numeric		Y	Number of full-time equivalent employees.
EPA Identifier	12	Text		N	May be either FRS_MASTER_ID, FINDS_ID, or an SRMP_ID.
OSHA PSM	1	Text		N	OSHA Process Safety Management Standard. Question covers all processes at the facility; if any process at the facility is subject to OSHA PSM, must answer Y even if the PSM process is not covered by this rule.
EPCRA 302	1	Text		**N**	EPCRA Section 302 pertains to the Extremely Hazardous Substances list. Any facility with a toxic regulated substance above the threshold quantity in a process is subject to EPCRA 302. If a facility is covered for only flammable regulated substances, the facility is not subject to 40 CFR 355 for those substances, although the facility may be for toxic substances not affected by this rule.
Air Operating Permit ID	15	Text		N	Unique identifier for a CAA Title V operating permit or state equivalent.
Last safety inspection date	8	Date	YYYYMMDD	N	Date of Last Safety Inspection.
Safety inspection by code	1	Text		N	A code representing the agency that performed the last safety inspection: OSHA, State OSHA, EPA, State EPA, Fire Department, Other, or Not Applicable.
Other (specify)	30	Text		Y if 1.11.g is filled.	The type of agency that performed the last facility safety inspection if it is other than one of the Safety Inspection codes listed above.

2.2 Flammables Mixture Chemicals

When reporting a flammable mixture, the components of the mixture must be identified. The maximum size of this record is 130 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S1FLAMIXCHEMICAL	16	Text		Y	Must be 'S1FLAMIXCHEMICAL'
Process chemical (flammable mixture)	4	Numeric		Y	Unique number used to identify each chemical within a single RMP.
Chemical name	100	Text		Y	The name of the regulated flammable chemical above the threshold quantity in a process at the source.
CAS number	10	Text		Y	Chemical Abstract Service (CAS) registry number for the flammable chemical.

2.3 Section 1 - Covered Processes

For each covered process, the owner or operator of a facility must report the chemical name, CAS number, quantity, NAICS code, and program level for each covered process at the facility. These elements have been structured for inclusion in the file as shown in the tables in Sections 2.3.1 - 2.3.3 of this appendix. Chemical name, CAS number, quantity, and NAICS code may be claimed as CBI; however, doing so requires submission of a paper justification to substantiate the claim.

2.3.1 Program Level

The program level for each covered process must be reported. The maximum size of this record is 12 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S1PROCESS	9	Text		Y	Must be 'S1PROCESS'
Process Identifier	2	Numeric		Y	Unique number used to identify each chemical within the RMP. Not related to same facility's processes in another RMP.
Program level	1	Numeric		Y	Program category, e.g., Program Level 1, 2, or 3, to identify with which program level the process complies.

2.3.2 Process Chemicals

All chemicals in the process must be registered. The maximum size of this record is 146 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S1PROCESSCHEMICAL	17	Text		Y	Must be 'S1PROCESSCHEMICAL'
Process Chemical identifier	4	Numeric		Y	Unique number used to identify each chemical within a single RMP.
Process identifier	2	Text		Y	Unique number used to identify each covered process within an RMP. From Section 1 - Covered Process.
Chemical name	100	Text		Y	The name of the regulated chemical above the threshold quantity in a process at the source.
CAS number	10	Text		Y	Chemical Abstract Service (CAS) registry number for the chemical.
Quantity (lbs)	12	Numeric		Y unless claimed as CBI	The maximum inventory quantity of each regulated substance or mixture in the process in pounds to two significant digits.
CBI indicator code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

2.3.3 NAICS Codes

The chemicals and NAICS codes for a given process are not directly related. The maximum size of this record is 24 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S1PROCESSNAICS	14	Text		Y	Must be 'S1PROCESSNAICS'
Process NAICS Identifier	2	Numeric		Y	Unique number used to identify each NAICS code within a covered process in an RMP.

Field	Length	Type	Format	Required?	Description
Process Identifier	2	Numeric		Y	Unique number used to identify each covered process in an RMP. From Section 1 - Covered Process.
NAICS code	6	Text		Y	The 5- or 6-digit North American and Industry Classification System (NAICS) code.

3.0 Section 2 - Toxics Worst Case

Any facility registering a toxic substance must complete at least one Toxics Worst Case for each Program Level 1 process containing a regulated toxic substance and at least one Toxics Worst Case Scenario to represent all regulated toxic substances held above the threshold quantity in Program Level 2 and Program Level 3 processes registered in Section 1 - Covered Process. Additional worst-case release scenario(s) may need to be completed if different public receptors are affected by the various processes within a facility. The file name of one optional map, diagram, or other graphic per Toxics Worst Case Scenario may optionally be provided. The maximum size of this record is 152 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S2TOXIC	7	Text		Y	Must be 'S2TOXIC'
Process Chemical Identifier	4	Numeric		Y	Unique number used to identify each chemical in a process. From Section 1 - Chemicals in Covered Process.
Percent weight of chemical in mixture	5	Numeric	5.1	Y	Percent Weight of a toxic chemical in a mixture.
Physical State Code	1	Text		Y	Code representing the physical state of the regulated chemical as it is released in the scenario.
Analytical Basis Code	30	Text		Y unless claimed as CBI	A code representing the analytical basis for choosing the Toxics Worst Case Scenario.
Scenario	1	Text		Y	A code representing the toxics worst case scenario: Toxic gas release: a release of the substance in a vapor state. Liquid spill and vaporization: A release of the substance in a liquid state with subsequent vaporization.

Field	Length	Type	Format	Required?	Description
Quantity released (lbs)	12	Numeric		Y unless claimed as CBI	The quantity of the chemical released in pounds during the worst case scenario.
Release rate (lb/min)	8	Numeric		Y unless claimed as CBI	The release rate of the chemical in pounds per minute.
Release duration (hours: minutes)	6	Text	HHH:MM	Y unless claimed as CBI	Indicate the length of time in hours and minutes for the vessel, pipeline, or other location of the regulated substance to release all of its contents. For gasses, the duration is 10 minutes.
Wind speed (m/sec)	4	Numeric	4.1	Y	The wind speed in meters per second. This is 1.5 meters per second unless local meteorological data applicable to the source is used to show a higher minimum wind speed at all times during the last 3 years.
Stability class	1	Text		Y	"F" unless local meteorological data can demonstrate otherwise.
Topography Code	1	Text		Y	A code representing whether the local topography is urban or rural.
Greater Than Indicator Code	1	Text		Y	Greater than symbol for the distance to endpoint.
Distance to endpoint	6	Numeric	6.3	Y	The distance to the endpoint in miles for the chemical, using the endpoint specified for the chemical in Appendix A of the risk management program rule.
Residential population within distance	8	Numeric		Y	Population within the distance to endpoint of the area encompassed by the endpoint. Need only include residential populations and may be rounded to two significant digits.
Schools	1	Text		N	Indication that a school is within the distance to the endpoint specified in the worst case scenario. Schools include: public and private elementary, secondary, or higher education schools.
Residences	1	Text		N	Indication that residences are within the distance to the endpoint specified in the worst case scenario.
Hospitals	1	Text		N	Indication that a hospital is within the distance to the endpoint specified in the worst case scenario.
Prisons	1	Text		N	Indication that a prison is within the distance to the endpoint specified in the worst case scenario.

Field	Length	Type	Format	Required?	Description
Public recreational areas or arenas	1	Text		N	Indication that a public recreational area or arena is within the distance to the endpoint specified in the worst case scenario. These include stadiums, parks, and public pools.
Commercial/industrial areas	1	Text		N	Indication that a major commercial, office, or industrial area is within the distance to the endpoint specified in the worst case scenario. These include industrial parks, office buildings, shopping malls, commercial areas.
National/state parks	1	Text		N	An indication that national or state parks, forests, or monuments are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Wildlife sanctuaries	1	Text		N	An indication that officially designated wildlife sanctuaries, preserves, or refuges are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Federal wilderness areas	1	Text		N	An indication that federal wilderness areas are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Dikes	1	Text		N	An indication that a low wall that acts as a barrier to prevent a spill from spreading is in place.
Enclosures	1	Text		N	An indication that a physical containment of the release within a structure (e.g., a building) is in place.
Berms	1	Text		N	An indication that a mound or wall of earth at the top or bottom of a slope that prevents a spill from spreading is in place.
Drains	1	Text		N	An indication that a channel that carries off surface water is in place.
Sumps	1	Text		N	An indication that a pit or tank that catches liquid runoff for drainage or disposal is in place.
Passive mitigation type code	30	Text		N	The Passive Mitigation type considered if other than those listed above.

Field	Length	Type	Format	Required?	Description
S2 Graphic File Name	12	Text		N	The file name for the toxics worst case graphic accompanying the scenario.
CBI Indicator Code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

4.0 Section 3 - Toxics Alternative Release

A facility must complete at least one Toxics Alternative Release Scenario for each toxic substance held above the threshold quantity in a Program Level 2 or Program Level 3 process registered in Section 1 - Covered Process. The maximum size of this record is 223 bytes. The file name of one optional map, diagram, or other graphic per alternative release scenario may optionally be provided.

Field	Length	Type	Format	Required?	Description
Record Identifier = S3TOXIC	7	Text		Y	Must be 'S3TOXIC'
Process Chemical Identifier	4	Numeric		Y	Unique number used to identify each chemical in a process. From S1 - Chemicals in Covered Process.
Percent weight of chemical in mixture	5	Numeric	5.1	Y	Percent weight of the regulated substance in the chemical evaluated.
Physical state code	1	Text		Y	Code representing the physical state of the toxic chemical as it is released in the scenario.
Analytical basis code	30	Text		Y unless claimed as CBI.	A code representing the analytical basis for choosing the Toxics Alternative Release Scenario.

Field	Length	Type	Format	Required?	Description
Scenario	1	Text		Y	A code representing the toxics alternative release scenario as follows: (a) Transfer hose failure is the failure of the connection between two or more vessels; (b) Pipe leak is the release through a rupture in a pipe; (c) Vessel peak is a release through a rupture in a vessel; (d) Overfilling is release due to filling a pipe, vessel, or other container past its capacity; (e) Ruptured disk/relief valve is a release due to failure of a rupture disk/relief valve to function properly. A rupture disk/relieve valve is a valve that relieves pressure beyond a specified limit and re-closes upon return to normal operating conditions; and (f) Excess flow device failure is a release caused by the failure of excess flow device to function properly and prevent surges from reaching downstream equipment.
Other Scenario Type	30	Text		N	The type of alternative release scenario if other than the Scenario codes listed.
Quantity released (lbs)	12	Numeric		Y	The quantity of the chemical released during the alternative release scenario in pounds.
Release rate (lb/min)	8	Numeric		Y	The release rate in pounds per minute.
Release duration (hours: minutes)	5	Numeric	5.1	Y	The a length of time in hours and minutes for the vessel, pipeline, or other location of the regulated substance to release the quantity.
Wind speed (meters/sec)	4	Numeric	4.1	Y	The wind speed in meters per second. List 3 m/s if RMP OCA guidance is used. If scenario is modeled, indicate the average daily wind speed based on annual data collected at the local meteorological.
Stability class	1	Text		Y	A code representing the average daily stability based on annual data collected at the site or local meteorological station.
Topography code	1	Text		Y unless claimed as CBI	A code representing the topography of the area potentially impacted by the alternative release scenario. List "D," if OCA guidance is used. If scenario is modeled, use the average daily stability based on annual data collected at local meteorological station.
Greater than indicator code	1	Text		Y	The greater than sign for the distance to endpoint.

Field	Length	Type	Format	Required?	Description
Distance to endpoint	6		6.3	Y	The distance to the endpoint of the toxics alternative release scenario in miles using the endpoint specified for the chemical in Appendix A of the Risk Management Program Rule.
Residential population within distance	12	Numeric		Y	The residential population within the distance to endpoint potentially impacted by the toxics alternative release scenario.
Schools	1	Text		N	Indication that a school is within the distance to the endpoint specified in the alternative release scenario. Schools include public and private elementary, secondary, or higher education schools.
Residences	1	Text		N	Indication that residences are within the distance to the endpoint specified in the alternative release scenario.
Hospitals	1	Text		N	Indication that a hospital is within the distance to the endpoint specified in the alternative release scenario.
Prisons	1	Text		N	Indication that a prison is within the distance to the endpoint specified in the alternative release scenario.
Public Recreation	1	Text		N	Indication that a public recreational area or arena is within the distance to the endpoint specified in the alternative release scenario. These include stadiums, parks, and public pools.
Commercial/Industrial Areas	1	Text		N	Indication that a major commercial, office, or industrial area is within the distance to the endpoint specified in the alternative release scenario. These include industrial parks, office buildings, shopping malls, commercial areas.
National/state parks	1	Text		N	An indication that national or state parks, forests, or monuments are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint for the alternative release scenario.
Wildlife Sanctuary	1	Text		N	An indication that officially designated wildlife sanctuaries, preserves, or refuges are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint for the alternative release scenario.
Federal Wilderness	1	Text		N	An indication that federal wilderness areas are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint for the alternative release scenario.

Field	Length	Type	Format	Required?	Description
Dikes	1	Text		N	An indication that a low wall that acts as a barrier to prevent a spill from spreading is in place.
Enclosures	1	Text		N	An indication that a physical containment of the release within a structure (e.g., a building) is in place.
Berms	1	Text		N	An indication that a mound or wall of earth at the top or bottom of a slope that prevents a spill from spreading is in place.
Drains	1	Text		N	An indication that a channel that carries off surface water is in place.
Sumps	1	Text		N	An indication that a pit or tank that catches liquid runoff for drainage or disposal is in place.
Other (specify)	30	Text		N	The type of Passive Mitigation in place if the passive mitigation is other than one of the choices above.
Sprinkler systems	1	Text		N	A system for protecting a building against fire by means of overhead pipes which convey an extinguishing fluid through heat activated outlets.
Deluge systems	1	Text		N	A system to overflow an area of a release with water or other extinguishing fluid.
Water curtain	1	Text		N	A spray of water from a horizontal pipe through nozzles, the curtain may be activated manually or automatically.
Neutralization	1	Text		N	Making a toxic chemical harmless through chemical reaction.
Excess flow valve	1	Text		N	A system for diverting overflow.
Flares	1	Text		N	A device for disposing of combustible gases from a chemical process by burning them in the open.
Scrubbers	1	Text		N	A pre-release protection measure that uses water or aqueous mixtures containing scrubbing reagents to remove discharging liquids and possibly also treating the discharging chemical.
Emergency shutdown	1	Text		N	Controls that are triggered when process limits are exceeded and that shut down that process.

Field	Length	Type	Format	Required?	Description
Active mitigation type text	30	Text		N	The type of active mitigation in place if other than one of the choices above.
S3 Graphic file name	12	Text		N	The file name of the graphic file for the toxics alternative release scenario.
CBI Indicator Code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

5.0 Section 4 - Flammables Worst Case

Any facility registering a flammable substance must complete at least one Flammables Worst Case Scenario. There must be at least one Flammables Worst Case Scenario for each Program Level 1 process containing a regulated flammable substance, and at least 1 Flammables Worst Case to represent all regulated flammable substances held above the threshold quantity in Program Level 2 and Program Level 3 processes registered in Section 1 - Covered Process. The file name of one optional map, diagram, or other graphic per Flammables Worst Case Scenario may optionally be provided. The maximum size of this record is 93 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S4FLAMMABLES	12	Text		Y	Must be 'S4FLAMMABLES'
Process Chemical Identifier	4	Numeric		Y	Unique number used to identify each chemical in a process. From S1 - Flammable Mixture Chemicals or S1 - Chemicals in Covered Process.
Analytical basis code	30	Text		Y unless claimed as CBI.	A code representing the analytical basis for choosing the Flammables Worst Case Scenario.
Quantity released (lbs)	12	Numeric		Y	The quantity of the flammable chemical released in pounds.
Greater than indicator code	1	Text		Y	The greater than sign for the distance to endpoint.
Distance to endpoint	6	Numeric	6.3	Y	The distance to the end of the impact zone for the flammables worst case scenario.

Field	Length	Type	Format	Required?	Description
Residential population within distance	8	Numeric		Y	The population within the distance to endpoint potentially impacted by the worst case scenario.
Schools	1	Text		N	Indication that a school is within the distance to the endpoint specified in the worst case scenario. Schools include: public and private elementary, secondary, or higher education schools.
Residences	1	Text		N	Indication that residences are within the distance to the endpoint specified in the worst case scenario.
Hospitals	1	Text		N	Indication that a hospital is within the distance to the endpoint specified in the worst case scenario.
Prisons	1	Text		N	Indication that a prison is within the distance to the endpoint specified in the worst case scenario.
Public recreational areas	1	Text		N	Indication that a public recreational area or arena is within the distance to the endpoint specified in the worst case scenario. These include stadiums, parks, and public pools.
Commercial/Industrial areas	1	Text		N	Indication that a major commercial, office, or industrial area is within the distance to the endpoint specified in the worst case scenario. These include industrial parks, office buildings, shopping malls, commercial areas.
National/state parks	1	Text		N	An indication that national or state parks, forests, or monuments are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Wildlife sanctuaries	1	Text		N	An indication that officially designated wildlife sanctuaries, preserves, or refuges are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Federal wilderness	1	Text		N	An indication that federal wilderness areas are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Dikes	1	Text		N	An indication that a low wall that acts as a barrier to prevent a spill from spreading is in place.
Fire walls	1	Text		N	An indication that a wall constructed to prevent the spread of fire is in place.

Field	Length	Type	Format	Required?	Description
Blast walls	1	Text		N	An indication that a heavy wall used to isolate buildings or areas that contain highly combustible or explosive materials is in place.
Enclosures	1	Text		N	An indication that a type of physical containment of the release within a structure (e.g., a building) is in place.
Passive mitigation type text	1	Text		N	The type of the passive mitigation considered if other than one of the choices above.
S4 Graphic file name	5	Text		N	The file name of the graphic file for the flammables worst case scenario.
CBI indicator code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

6.0 Section 5 - Flammables Alternative Release

Any facility registering a flammable substance in a Program Level 2 or Program Level 3 process must complete at least one Flammables Alternative Release. Allow for multiple Flammables Alternative Release scenarios because different populations may be affected. There must be at least one Section 5 for all regulated flammable substances held above the threshold quantity in a Program Level 2 or Program Level 3 process registered in Section 1- Covered Process. The file name of one optional map, diagram, or other graphic per flammable alternative release scenario may optionally be provided. The maximum size of this record is 227 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S5FLAMMABLES	12	Text		Y	Must be 'S5FLAMMABLES'
Process Chemical Identifier	4	Numeric		Y	Unique number used to identify each chemical within a process. From S1 - Flammable Mixture Chemicals or S1 - Chemicals in Covered Process.
Analytical basis code	30	Text		Y unless claimed as CBI.	A code representing the analytical basis for choosing the Flammables Alternative Release Scenario.

Field	Length	Type	Format	Required?	Description
S5 Scenario code	1	Text		Y	A code representing the type of flammable release scenario. a. Vapor cloud explosion: explosion of a cloud made of a mixture of a flammable vapor or gas with air b. Fireball: atmospheric burning of fuel-air cloud in which the energy is mostly emitted in the form of radiant heat. c. BLEVE: Boiling Liquid Expanding Vapor Explosion: used to describe the sudden rupture of a vessel/system containing liquefied flammable gas under pressure due to radiant heat flux. d. Pool fire: combustion of material evaporating from a layer of liquid at the base of the fire. e. Jet fire: gas discharging or venting from a rupture will form a gas jet that "blows" into the atmosphere in the direction the whole is facing, all the while entraining and mixing with air. f. Vapor cloud fire: flash fire results from the ignition of a released flammable cloud in which there is essentially no increase in the combustion rate. g. Other
S5 Other scenario type text	30	Text		N	The type of alternative release scenario if other than one of the choices above.
Quantity released (lbs)	12	Numeric		Y	The quantity of the flammable chemical released in pounds.
Endpoint used	30	Text		Y	The endpoint of the flammable reaction - “1 PSI” or “5 kw/m^2 for 40 seconds” or “Lower flammability limit.”
Lower flammability limit	3	Numeric	3.1	N	The number specifies lower flammability limit in units of % volume.
Greater than indicator code	1	Text		Y	The greater than sign for the distance to endpoint.
Distance to endpoint	6	Numeric	6.3	Y	The distance impacted by the flammable release in miles.
Residential population within distance	8	Numeric		Y	The population within the distance to endpoint potentially impacted by the alternative release.

Field	Length	Type	Format	Required?	Description
Schools	1	Text		N	Indication that a school is within the distance to the endpoint specified in the alternative release scenario. Schools include: public and private elementary, secondary, or higher education schools.
Residences	1	Text		N	Indication that residences are within the distance to the endpoint specified in the alternative release scenario.
Hospitals	1	Text		N	Indication that a hospital is within the distance to the endpoint specified in the alternative release scenario.
Prisons	1	Text		N	Indication that a prison is within the distance to the endpoint specified in the alternative release scenario.
Public recreation	1	Text		N	Indication that a public recreational area or arena is within the distance to the endpoint specified in the alternative release scenario. These include stadiums, parks, and public pools.
Commercial/Industrial areas	1	Text		N	Indication that a major commercial, office, or industrial area is within the distance to the endpoint specified in the alternative release scenario. These include industrial parks, office buildings, shopping malls, and commercial areas.
National/state parks	1	Text		N	An indication that national or state parks, forests, or monuments are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Wildlife sanctuaries	1	Text		N	An indication that officially designated wildlife sanctuaries, preserves, or refuges are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Federal wilderness	1	Text		N	An indication that federal wilderness areas are within a circle whose center is the point of the release and radius is determined by the distance to the endpoint.
Dikes	1	Text		N	An indication that a low wall that acts as a barrier to prevent a spill from spreading is in place.
Fire walls	1	Text		N	An indication that a wall constructed to prevent the spread of fire is in place.

Field	Length	Type	Format	Required?	Description
Blast walls	1	Text		N	An indication that a heavy wall used to isolate buildings or areas that contain highly combustible or explosive materials is in place.
Enclosures	1	Text		N	An indication that a type of physical containment of the release within a structure (e.g., a building) is in place.
Other (specify)	30	Text		N	The type of the passive mitigation considered if other than the choices listed above.
Sprinkler	1	Text		N	An indication that a system for protecting against fire by means of overhead pipes which convey an extinguishing fluid through heat activated outlets was considered.
Deluge	1	Text		N	An indication that a system to overflow an area of a release with water or other extinguishing fluid was considered.
Water curtain	1	Text		N	An indication that a spray of water from a horizontal pipe through nozzles was considered. The curtain may be activated manually or automatically.
Excess flow valve	1	Text		N	An indication that a system for diverting overflow was considered.
Active Mitigation Type Text	30	Text		N	The type of active mitigation considered if other than the choices listed above.
S5 Graphic file name	12	Text		N	The file name of the graphics file for the flammable alternative release scenario.
CBI indicator code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

7.0 Section 6 - Five-Year Accident History

Each facility must complete one Accident History for every accidental release from a covered process that occurred within the last 5 years (as of the date of submission of the RMP) that resulted in deaths, injuries, or significant property damage onsite, or known offsite deaths, injuries, evacuations, sheltering-in-place, property damage, or environmental damage.

7.1 Section 6 - Accident Chemicals

The maximum size of this record is 148 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S6ACCIDENTCHEMICALS	17	Text		Y	Must be 'S6ACCIDENTCHEMICALS'
Accident History Identifier	4	Text		Y	Unique number to identify each accident history record.
Chemical name	100	Text		Y	The name of the regulated chemical released.
CAS number	10	Text		Y	Chemical Abstract Service (CAS) registry number for the chemical released
Quantity released (lbs)	12	Text		Y	The amount of the chemical released in pounds. This applies to toxic chemicals only.
Percent weight of chemical in release	5	Numeric		N	Percent weight of chemical in release. This applies to toxic chemicals only.

7.2 Section 6 - Five-Year Accident History

The maximum size of this record is 279 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S6ACCIDENTHISTORY	17	Text		Y	Must be 'S6ACCIDENTHISTORY'
Accident History Identifier	4	Numeric		Y	Unique number to identify each Accident History record.
Date	8	Date	YYYYMMDD	Y	Date of the accident.
Time	4	Date	HHMM	Y	Time of the accident (24-hour clock).
NAICS code	6	Text		Y	The 5- or 6- digit North American and Industry Classification System (NAICS) code.
Release duration	5	Numeric	5.1	Y	Approximate length of time of the release in hours and minutes.
Gas release	1	Text		N	Release of the substance in a vapor state.
Liquid spill/evaporation	1	Text		N	Release of the substance in a liquid state with subsequent vaporization.
Fire	1	Text		N	Product (e.g., fuel) in a state of combustion.

Field	Length	Type	Format	Required?	Description
Explosion	1	Text		N	Rapid chemical reaction with the production of noise, heat, and violent expansion of gases.
Storage vessel	1	Text		N	Container for storing, holding, or transporting a liquid
Piping	1	Text		N	System of pipes used to carry a fluid.
Process vessel	1	Text		N	Container in which regulated substances are blended to form a mixture or reacted to convert them into some other final product or form.
Transfer hose	1	Text		N	Connection between two or more vessels.
Valve	1	Text		N	Structure that closes temporarily a passage or permits movement of fluid in one direction only.
Pump	1	Text		N	Device that raises, transfers, or compresses fluids or that attenuates gases by suction or pressure or both.
Joint	1	Text		N	The surface at which two or more mechanical components are united.
Other (specify)	30	Text		N	The release source name when the source of the release is other than the choices listed above.
Wind speed	4	Numeric	4.1	N	Wind speed at the time of the accident in miles per hour, meters per second, or knots.
Wind speed unit code	1	Text		N	Unit code for wind speed. One of the following codes: a) miles/h, b) knots, or c) meters/second.
Wind direction	3	Text		N	Direction from which the wind comes using standard compass reading or in degrees with North as zero degrees and East as 90 degrees.
Temperature	3	Numeric		N	The ambient temperature at the scene of the accident in degrees Fahrenheit.
Stability class	1	Text		N	A general indication of the degree of mixing present in the atmosphere accounting for wind speed and sunlight, where "A" represents extremely unstable conditions and "F" represents calm conditions.

Field	Length	Type	Format	Required?	Description
Precipitation present	1	Text		N	An indicator of whether precipitation was present at the time of the accident.
Weather unknown	1	Text		N	A flag indicating the weather conditions at the time of the accident are unknown.
Workers/contractors killed	5	Numeric		N	The number of on-site workers/contractors killed during the accident or performing any mitigation activities.
Public responders killed	3	Numeric		N	The number of on-site public responders killed during the accident or performing any mitigation activities.
Public killed	5	Numeric		N	The number of on-site public killed during the accident or performing any mitigation activities.
Workers/contractors injured	5	Numeric		N	The number of on-site worker/contractors injured during the accident or performing any mitigation activities.
Public responders Injured	3	Numeric		N	The number of on-site public responders injured during the accident or performing any mitigation activities.
Public injured	5	Numeric		N	The number of on-site public injured during the accident or performing any mitigation activities.
On-site property damage	12	Numeric		Y	Value of the equipment or business structures that were damaged by the accident or mitigation activities at the facility, in whole American dollars.
Off-site deaths (including non-employees on-site)	8	Numeric		Y	The number of offsite deaths attributable to the accident or mitigation activities, including community members, emergency responders, and on-site non-employees.
Hospitalizations (including non-employees on-site)	8	Numeric		Y	The total number of injuries to the community or response agencies attributable to the accident or mitigation activities that required hospitalization.
Medical treatment count	8	Numeric		Y	The number of injuries to the community or response agencies that required medical treatment, not including first aid.
Evacuated count	8	Numeric		Y	The number of people evacuated from the accident site.

Field	Length	Type	Format	Required?	Description
Sheltered-in-place count	8	Numeric		Y	Number of community members sheltered-in-place (ordered by the incident commander to remain inside their residence or place of work until the emergency is over.)
Offsite property damage amount	12	Numeric		Y	Estimated value of the off-site property damage, in whole American dollars, caused by the accident, including damage to response equipment.
Fish or animal kills	1	Text		N	An indication that the type of environmental damage that occurred involved fish or animal kills.
Lawn, shrub, or crop damage - minor defoliation	1	Text		N	An indication that the type of environmental damage that occurred involved minor lawn, shrub, or crop damage.
Lawn, shrub, or crop damage - major defoliation	1	Text		N	An indication that the type of environmental damage that occurred involved major lawn, shrub, or crop damage.
Water contamination	1	Text		N	An indication that the type of environmental damage that occurred involved water contamination.
Equipment failure (initiating event)	1	Text		N	A device or piece of equipment did not function as designed.
Human error (initiating event)	1	Text		N	An operator performs an operation improperly.
Weather conditions (initiating event)	1	Text		N	Weather conditions, such as lightening, hail, ice storms, tornados, hurricanes, floods, or high winds caused the accident.
Equipment failure (contributing factor)	1	Text		N	A device or piece of equipment did not function as designed thereby allowing a substance to be released.
Human error (contributing factor)	1	Text		N	An operator performs an operation improperly or makes a mistake resulting in a release.
Improper procedure (contributing factor)	1	Text		N	The procedure did not reflect the current method of operation, the procedure omitted steps that affected the accident, or the procedure was written in a manner that allowed for misinterpretation of the instructions.
Overpressurization (contributing factor)	1	Text		N	The process was operated at pressures exceeding the design working pressure.

Field	Length	Type	Format	Required?	Description
Upset condition (contributing factor)	1	Text		N	Release caused by incorrect process conditions (e.g., increased temperature or pressure).
By-pass condition (contributing factor)	1	Text		N	A pipe or channel that provides an alternative pathway that detours the main pathway fails releasing a substance.
Maintenance activity/inactivity (contributing	1	Text		N	Any failure that occurs because of maintenance activity or inactivity.
Process design failure (contributing factor)	1	Text		N	Any failure that occurs because of an inherent flaw in the design of the process.
Unsuitable equipment (contributing factor)	1	Text		N	The equipment used was incorrect for the process.
Unusual weather condition (contributing factor)	1	Text		N	Weather conditions, such as lightning, hail, ice storms, tornados, hurricanes, floods, or high winds caused the accident.
Management error (contributing factor)	1	Text		N	This may be used to describe failures that occur because management did not exercise its managerial control to prevent the situation from occurring. This is usually used to describe faulty procedures, inadequate training, or failure to follow existing administrative procedures.
Other (contributing factor)	1	Text		N	An indication that a factor other than the ones specified contributed to the accident occurring.
Other (specify contributing factor)	30	Text		Y	The name of the factor contributing to the accident other than the codes for ContribFactors.
Offsite responders notified	1	Text		N	Indication of whether agencies were contacted.
Improved/upgraded equipment	1	Text		N	A device or piece of equipment that did not function as designed was repaired or replaced.
Revised maintenance	1	Text		N	Maintenance processes were clarified or changed to ensure employees and contract employees are aware of and are practicing correct safety, process, and administrative procedures.
Revised training	1	Text		N	Training programs were clarified or changed to ensure that employees and contract employees are aware of and are practicing correct safety, process, and administrative procedures.

Field	Length	Type	Format	Required?	Description
Revised operating procedures	1	Text		N	Operating procedures were clarified or changed to ensure that employees and contract employees are trained on process operating procedures.
New process controls	1	Text		N	New process designs and controls were installed to correct problems and prevent recurrence of an accidental release.
New mitigation systems	1	Text		N	New mitigation systems were initiated to limit accidental releases.
Revised emergency response plan	1	Text		N	The emergency response plan was revised.
Changed process	1	Text		N	The process was changed.
Reduced inventory	1	Text		N	Inventory was reduced at the source to prevent accidental release.
Change introduced name	30	Text		N	The name of the change introduced if other than one of the choices listed above.
None	1	Text		N	Indication that none of the measures were taken at the facility to prevent recurrence of the accident.

8.0 Section 7 - Prevention Program 3

For each Program 3 process at a facility, the owner or operator must complete one Prevention Program 3. Each Program Level 3 process identified in Section 1 - Covered Process must be linked with a specific Program Level 3 Prevention Program in Section 7.

8.1 Section 7 - Prevention Program 3

The maximum size for this record is 651bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S7PP3	5	Text		Y	Must be 'S7PP3'
Prevention Program Level 3 Identifier	4	Numeric		Y	A unique number used to identify each prevention program within a NAICS code.

Field	Length	Type	Format	Required?	Description
Process NAICS identifier	2	Numeric		Y	A number from S1 - Process NAICS.
Date on which safety information was last reviewed/revised.	8	Date	YYYYMMDD	N	Date on which safety information was last reviewed or revised.
Date last PHA/update	8	Date	YYYYMMDD	N	Date of completion of the most recent Process Hazard Analysis (PHA) or update.
What If	1	Text		N	A What If analysis considers the consequences associated with events that occurred as a result of failures involving equipment, design, or procedures.
Checklist	1	Text		N	This system involves developing a checklist of failure areas and reviewing each area to determine the possible effects of failure.
What If/Checklist (combined)	1	Text		N	This methodology combines the What If and checklist analysis methodologies to identify and evaluate process hazards.
HAZOP	1	Text		N	Hazard and Operability Studies (HAZOPs) are conducted by teams that brainstorm to systematically identify hazards or operability problems through the use of certain guidewords.
Failure mode and effects analysis	1	Text		N	This is a methodology of tabulating the source's equipment, failure modes (how equipment fails), each failure mode's effect on the source, and a ranking of each failure mode.
Fault tree analysis	1	Text		N	This is a deductive technique that focuses on one particular accident event and provides a method for determining causes of the event. The fault tree is a graphic model that displays the various combinations of equipment faults and failures that can result in a release.
PHA technique other	30	Text		N	The name of the PHA technique used.
Expected date of completion of any changes resulting from PHA	8	Date	YYYYMMDD	N	The expected date of completion of any changes recommend by the PHA.
Toxic release	1	Text		N	If an accidental release occurred a regulated toxic substance could be released posing a major hazard.

Field	Length	Type	Format	Required?	Description
Fire	1	Text		N	Process upsets, leaks, equipment failure, etc., could result in a fire and pose a major hazard.
Explosion	1	Text		N	Confined or unconfined vapor cloud explosions. Explosion will be a major hazard for listed flammables. It may also be a hazard for toxics, especially those handled at extreme conditions.
Runaway reaction	1	Text		N	An uncontrolled reaction that proceeds at an increasing rate and as a result, poses a major hazard.
Polymerization	1	Text		N	A chemical reaction that produces the bonding of two or more monomers resulting in the potential for a major hazard.
Overpressurization	1	Text		N	Instantaneous energy release or detonation potentially resulting in a major hazard.
Corrosion	1	Text		N	The presence of the regulated substance could lead to destruction of equipment and a release. Corrosion may be a major hazard for substances identified as corrosives on MSDSs unless the equipment used limits the hazard.
Overfilling	1	Text		N	Filling a tank or vessel beyond its maximum safe capacity which may result in a major hazard.
Contamination	1	Text		N	A release could occur if inappropriate substances are introduced into storage or process vessels. Contamination may be a major hazard if controlling inappropriate substances (e.g., H_2O) is difficult.
Equipment failure	1	Text		N	Equipment failure is likely to be a major hazard for most processes because such failure could lead to a release. Equipment failure includes cracks, weld failures, disk failures, ruptures, pump/gauge/control system failures, etc.
Loss of cooling, heating, electricity, instrument air	1	Text		N	These losses could be major hazards if they would lead to releases. For example, loss of cooling could lead to an increase in pressure and failure of a vessel or pipe. A loss of heating or power could lead to unstable processes.
Earthquake	1	Text		N	Report earthquakes only if they are frequent enough or likely enough to

Field	Length	Type	Format	Required?	Description
					occur that they could potentially constitute a major hazard at your site so that you design and plan for them.
Floods (flood plain)	1	Text		N	Report floods only if they are frequent enough or likely enough to occur that they could potentially constitute a major hazard at your site so that you design and plan for them.
Tornado	1	Text		N	Report tornados only if they are frequent enough or likely enough to occur that they could potentially constitute a major hazard at your site so that you design and plan for them.
Hurricanes	1	Text		N	Report hurricanes only if they are frequent enough or likely enough to occur that they could potentially constitute a major hazard at your site so that you design and plan for them.
Other (specify)	30	Text		N	The name of the major hazard if other than one of the choices above.
Vents	1	Text		N	An opening provided as a process control for the discharge of pressure or release of pressure from tanks, vessels, processing equipment, etc.
Relief valves	1	Text		N	A process control relief valve is a valve that relieves pressure beyond a specified limit and re-closes upon return to normal operating conditions.
Check valves	1	Text		N	A process control device for automatically limiting flow in a piping system to a single direction.
Scrubbers	1	Text		N	A pre-release process control protection measure that uses water or aqueous mixtures containing scrubbing reagents to remove discharging liquids and possibly also treating the discharging chemical.
Flares	1	Text		N	A pre-release process control protection measure used for flammable gases and vapors to remove and possibly treat discharged liquids.
Manual shutoffs	1	Text		N	A process control which controls the shutoff flow to a pipe or vessel and that must be operated manually.
Automatic shutoffs	1	Text		N	A process control that controls the shutoff flow to a pipe or vessel and that are triggered automatically when process conditions are exceeded.
Interlocks	1	Text		N	A process control switch or other device that prevents activation of a piece of equipment when a protective door is open or some other hazard exists.

Field	Length	Type	Format	Required?	Description
Alarms and procedures	1	Text		N	Process control alarms and procedures: Systems that operate a warning device after the occurrence of a hazardous condition and procedures to activate the alarm system.
Keyed bypass	1	Text		N	A bypass system that is activated by a control signal serves as the process control.
Emergency air supply	1	Text		N	A backup process control system which provides air to a process when the regular air supply fails.
Emergency power	1	Text		N	Backup power systems are used in process control.
Backup pump	1	Text		N	A secondary process control pump intended to serve the same function as the primary pump if the primary pump fails.
Grounding equipment	1	Text		N	Process control devices that ground electrical equipment to avoid explosions.
Inhibitor addition	1	Text		N	A process control substance that is added to a reaction that is capable of stopping or retarding a chemical reaction.
Rupture disks	1	Text		N	A process control rupture disk is a device that relieves pressure beyond a specified limit and re-closes upon return to normal operating conditions.
Excess flow device	1	Text		N	Process control flow-limiting equipment that protects downstream equipment from surges.
Quench system	1	Text		N	A process control system that cools by removing excess heat or immersing liquid into a cooling medium.
Purge system	1	Text		N	A process control system that replaces the atmosphere in a container with an inert substance to prevent the formation of an explosive mixture.
Other (specify)	30	Text		N	The name of the process control if other than one of the choices above.
Sprinkler system	1	Text		N	A mitigation system for protecting a building against fire by means of overhead pipes which convey an extinguishing fluid through heat activated outlets.
Dikes	1	Text		N	A low wall that acts as a barrier mitigating the spreading of a spill.

Field	Length	Type	Format	Required?	Description
Fire walls	1	Text		N	A wall constructed to mitigate the spread of fire.
Blast walls	1	Text		N	A mitigation system which uses a heavy wall used to isolate buildings or areas that contain highly combustible or explosive materials.
Deluge system	1	Text		N	A mitigation system to overflow an area of a release with water or other extinguishing fluid.
Water curtain	1	Text		N	A mitigation system using a spray of water from a horizontal pipe through nozzles. The curtain may be activated manually or automatically.
Enclosure	1	Text		N	A mitigation system which uses physical containment of the release within a structure (e.g., a building).
Neutralization	1	Text		N	A mitigation system which controls the release by neutralizing the released chemical.
Mitigation System Other Type	30	Text		N	The type of the mitigation system in use if other than one of the choices above.
Process area detectors	1	Text		N	Detection systems located on or close to process equipment. Detection systems include indicator tubes, and chromatographic, spectrometric, electrochemical, and colorimetric gas analysis.
Perimeter monitors	1	Text		N	Integrated detection networks at the source boundary. Detection systems can include fluorescent SO_2 analyzers, photoelectric tape sensors, or electrolytic chlorine detectors.
Monitoring Detection Other Type	30	Text		N	The type of monitoring/detection system in place if other than the ones listed above.
Reduction in chemical inventory	1	Text		N	An indication that since the last PHA update there was a decrease in the quantity of regulated substances stored on site.
Increase in chemical inventory	1	Text		N	An indication that since the last PHA update there was an increase in the quantity of regulated substances stored on site.
Change process parameters	1	Text		N	An indication that since the last PHA update there was an increase or decrease in temperature, pressure, flow rates, etc.
Installation of process controls	1	Text		N	An indication that since the last PHA update there has been an addition of process controls used to prevent or limit releases.

Field	Length	Type	Format	Required?	Description
Installation of process detection systems	1	Text		N	An indication that since the last PHA update additional detection systems have been installed to detect a release of a regulated substance from the process.
Installation of perimeter monitoring systems	1	Text		N	An indication that since the last PHA update additional perimeter monitoring systems have been installed to detect a release of a regulated substance from the process.
Installation of mitigation systems	1	Text		N	An indication that since the last PHA update additional mitigation systems have been put in place.
None required/recommended	1	Text		N	An indication that since the last PHA update, no change has been made to the process.
PHA Update Change Other Type	100	Text		N	The type of change since the last PHA update.
Date of most recent review of operating procedures	8	Text	YYYYMMDD	N	Date of most recent review of operating procedures.
Date of most recent review/revision of training	8	Text	YYYYMMDD	N	The date of the most recent review or revision of training programs.
Classroom training	1	Text		N	An indication that training was in a classroom setting.
On-the-job training	1	Text		N	An indication that training was on the job.
Other training	1	Text		N	An indication that a training type other than the ones specified was given.
Training type other	50	Text		N	The name of the type of training provided if other than the TrainingType codes.
Written test	1	Text		N	A written test was given to determine and evaluate employee comprehension of training materials.
Oral test	1	Text		N	An oral test was given to determine and evaluate employee comprehension of training materials.
Demonstration	1	Text		N	A demonstration was given to determine and evaluate employee comprehension of training materials.
Observation	1	Text		N	Employees were observed to determine and evaluate employee comprehension of training materials.
Other (specify)	30	Text		N	The type of competency test used if other than the values for CompetencyTest.

Field	Length	Type	Format	Required?	Description
Date of most recent review/revision of maintenance procedures	8	Date	YYYYMMDD	N	The date of most recent review/revision of maintenance procedures.
Date of most recent equipment inspection/test	8	Date	YYYYMMDD	N	The date of the most recent equipment inspection/test.
What equipment inspected/tested	100	Text		N	A description of the equipment tested or inspected.
Date of most recent change that triggered management of change procedures	8	Date	YYYYMMDD	N	The date of the most recent change that triggered management of change procedures.
Date of most recent review/revision of management of change procedures	8	Date	YYYYMMDD	N	The date of the most recent review/revision of management of change procedures.
Date of most recent pre-startup review	8	Date	YYYYMMDD	N	Date of the most recent pre-startup review.
Date of most recent compliance audit	8	Date	YYYYMMDD	N	Date of the most recent compliance audit.
Expected date of completion of any changes resulting from compliance audit	8	Date	YYYYMMDD	N	The expected date of completion of any changes resulting from the compliance audit.
Date of most recent incident investigation	8	Date	YYYYMMDD	N	The date of the most recent incident investigation.
Expected date of completion of any changes resulting from investigation	8	Date	YYYYMMDD	N	The expected date of completion of any changes resulting from an investigation.
Date of most recent review/revision of employee participation plans	8	Date	YYYYMMDD	N	Date of most recent review/revision of employee participation plans.
Date of most recent review/revision of hot work permit procedures	8	Date	YYYYMMDD	N	Date of most recent review/revision of hot work permit procedures.
Date of most recent review/revision of contractor safety procedures	8	Date	YYYYMMDD	N	Date of most recent review/revision of contractor safety procedures.
Date of most recent evaluation of contractor safety performance	8	Date	YYYYMMDD	N	Date of most recent evaluation of contractor safety performance.
CBI Indicator Code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

8.2 Section 7 - Prevention Program 3 Chemicals

The maximum size of this record is 118 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S7PP3CHEMICALS					
Prevention Program Level 3 Identifier	4	Numeric		Y	A unique number used to identify each prevention program within a NAICS code.
Process Chemical Identifier	4	Numeric		Y	A number used to identify each chemical within a single RMP. From S1 - Chemicals in Covered Process.
Chemical name	100	Text		Y	The name of the regulated flammable chemical above the threshold quantity in a process at the source.
CAS number	10	Text		Y	Chemical Abstract Service (CAS) registry number for the flammable chemical.

9.0 Section 8 - Prevention Program 2

For each facility with a Program Level 2 process, the owner or operator must complete at least one Prevention Program 2. Each Program 2 process identified in Section 1 - Covered Process should be linked with a specific Program Level 2 Prevention Program in Section 8.

9.1 Section 8 - Prevention Program 2

The maximum size for this record is 724 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S8PP2	5	Text		Y	Must be 'S8PP2'
Prevention Program Level 2 Identifier	4	Numeric		Y	A unique number used to identify each prevention program within a NAICS code.
Process NAICS Identifier	2	Numeric		Y	A number from S1 - Process NAICS.
Date of most recent review/revision of safety information	8	Date	YYYYMMDD	N	Date of most recent review/revision of safety information.

Field	Length	Type	Format	Required?	Description
NFPA 58 (or state law based on NFPA 58)	1	Text		N	An indication of safety compliance with the National Fire Protection Association propane handling laws. Propane laws are based on NFPA 59 except in the states of California and Texas.
OSHA (29 CFR 1910.111)	1	Text		N	An indication of safety compliance with the OSHA rule for handling anhydrous ammonia.
ASTM Standards	1	Text		N	An indication of safety compliance with the American Society of Testing Materials standards. Establishes standards for materials, products, systems, services, test methods, specifications, classifications, definitions, and recommended practices.
ANSI Standards	1	Text		N	An indication of safety compliance with the American National Standards Institute standards. Nationally coordinates voluntary standards. Gives status to standards in such areas as definitions, terminology, symbols, and abbreviations; materials, performance characteristics, procedure, and methods of rating; methods of testing and analysis; size, weight, and volume; safety, health, and building construction.
ASME Standards	1	Text		N	An indication of safety compliance with the American Society of Mechanical Engineers standards. Conducts research and develops boiler, pressure vessel, and power test codes. Also develops safety codes and standards for equipment.
None	1	Text		N	An indication that no Federal or state regulations or industry-specific design codes or standards were used to demonstrate compliance with the safety information requirement.
Design Code Standard	50	Text		N	The name of the industry-specific design code/standard used to demonstrate compliance with the safety information requirement if other than one of the choices above.
Comments	100	Text		N	A comment field to explain how Federal, State, or industry-specific design codes and standards are being used to demonstrate compliance with the safety information requirement.

Field	Length	Type	Format	Required?	Description
Date of completion of most recent hazard review/update	8	Date	YYYYMMDD	N	Date of completion of most recent hazard review or update.
Expected date of completion of any changes resulting from the hazard review	8	Date	YYYYMMDD	N	Expected date of completion of any changes resulting from the hazard review.
Toxic release	1	Text		N	If an accidental release occurred a regulated toxic substance could be released potentially causing a major hazard.
Fire	1	Text		N	Process upsets, leaks, equipment failure, etc., could result in a fire potentially constituting a major hazard.
Explosion	1	Text		N	Confined or unconfined vapor cloud explosions. Explosion will be a major hazard for listed flammables. It may also be a hazard for toxics, especially those handled at extreme conditions.
Runaway reaction	1	Text		N	An uncontrolled reaction that proceeds at an increasing rate potentially resulting in a major hazard.
Polymerization	1	Text		N	A chemical reaction that produces the bonding of two or more monomers which could potentially result in a major hazard.
Overpressurization	1	Text		N	Instantaneous energy release or detonation potentially causing a major hazard.
Corrosion	1	Text		N	The presence of the regulated substance could lead to destruction of equipment and a release. Corrosion may be a major hazard for substances identified as corrosives on MSDSs unless the equipment used limits the hazard.
Overfilling	1	Text		N	Filling a tank or vessel beyond its maximum safe capacity could potentially cause a major hazard.
Contamination	1	Text		N	A release could occur if inappropriate substances are introduced into storage or process vessels. Contamination may be a major hazard if controlling inappropriate substances (e.g., H_2O) is difficult.

Field	Length	Type	Format	Required?	Description
Equipment failure	1	Text		N	Equipment failure is likely to be a major hazard for most processes because such failure could lead to a release. Equipment failure includes cracks, weld failures, disk failures, ruptures, pump/gauge/control system failures, etc.
Loss of cooling, heating, electricity, instrument air	1	Text		N	These losses could be major hazards if they would lead to releases. For example, loss of cooling could lead to an increase in pressure and failure of a vessel or pipe; a loss of heating or power could lead to unstable processes. These conditions are less likely to be major hazards for substances handled at atmospheric temperatures and pressures.
Earthquake	1	Text		N	Report earthquakes only if they are frequent enough or likely enough to occur and potentially cause a major hazard at your site so that you design and plan for them.
Floods (flood plain)	1	Text		N	Report floods only if they are frequent enough or likely enough to occur and potentially cause a major hazard at your site so that you design and plan for them.
Tornado	1	Text		N	Report tornados only if they are frequent enough or likely enough to occur and potentially cause a major hazard at your site so that you design and plan for them.
Hurricanes	1	Text		N	Report hurricanes only if they are frequent enough or likely enough to occur and potentially cause a major hazard at your site so that you design and plan for them.
Other	1	Text		N	An indication that a major hazard other than the ones specified could potentially occur at the site.
Major Hazard Other Type	30	Text		N	The name of the major hazard identified if other than one of the choices above.
Vents	1	Text		N	A process control opening provided for the discharge of pressure or release of pressure from tanks, vessels, processing equipment, etc.

Field	Length	Type	Format	Required?	Description
Relief valves	1	Text		N	A process control relief valve is a valve that relieves pressure beyond a specified limit and re-closes upon return to normal operating conditions.
Check valves	1	Text		N	A process control device for automatically limiting flow in a piping system to a single direction.
Scrubbers	1	Text		N	A process control pre-release protection measure that uses water or aqueous mixtures containing scrubbing reagents to remove discharging liquids and possibly also treating the discharging chemical.
Flares	1	Text		N	A process control pre-release protection measure used for flammable gases and vapors to remove and possibly treat discharged liquids.
Manual shutoffs	1	Text		N	A process control which controls the shutoff flow to a pipe or vessel and that must be operated manually.
Automatic shutoffs	1	Text		N	A process control which controls the shutoff flow to a pipe or vessel and that are triggered automatically when process conditions are exceeded.
Interlocks	1	Text		N	A process control switch or other device that prevents activation of a piece of equipment when a protective door is open or some other hazard exists.
Alarms and procedures	1	Text		N	Process control alarms and procedures: Systems that operate a warning device after the occurrence of a hazardous condition and procedures to activate the alarm system.
Keyed bypass	1	Text		N	A process control which serves as a bypass system that is activated by a control signal.
Emergency air supply	1	Text		N	A process control backup system to provide air to a process when the regular air supply fails.
Emergency power	1	Text		N	An indication that backup power systems are used as process controls.

Field	Length	Type	Format	Required?	Description
Backup pump	1	Text		N	A secondary process control pump intended to serve the same function as the primary pump if the primary pump fails.
Grounding equipment	1	Text		N	Process control devices that ground electrical equipment to avoid explosions.
Inhibitor addition	1	Text		N	A process control substance that is added to a reaction that is capable of stopping or retarding a chemical reaction.
Rupture disks	1	Text		N	A process control rupture disk is a device that relieves pressure beyond a specified limit and re-closes upon return to normal operating conditions.
Excess flow device	1	Text		N	Process control flow-limiting equipment that protects downstream equipment from surges.
Quench system	1	Text		N	A process control system that cools by removing excess heat or immersing liquid into a cooling medium.
Purge system	1	Text		N	A process control system that replaces the atmosphere in a container with an inert substance to prevent the formation of an explosive mixture.
Process control other	30	Text		N	The name of the process control in use if other than one of the choices above.
Sprinkler system	1	Text		N	A mitigation system for protecting a building against fire by means of overhead pipes which convey an extinguishing fluid through heat activated outlets.
Dikes	1	Text		N	A low wall that acts as a barrier mitigating the spreading of a spill.
Fire walls	1	Text		N	A wall constructed to mitigate the spread of fire.
Blast walls	1	Text		N	A mitigation system which uses a heavy wall used to isolate buildings or areas that contain highly combustible or explosive materials.
Deluge system	1	Text		N	A mitigation system to overflow an area of a release with water or other extinguishing fluid.

Field	Length	Type	Format	Required?	Description
Water curtain	1	Text		N	A mitigation system which uses a spray of water from a horizontal pipe through nozzles, the curtain may be activated manually or automatically.
Enclosure	1	Text		N	A mitigation system which uses physical containment of the release within a structure (e.g., a building).
Neutralization	1	Text		N	A mitigation system which controls a release by neutralizing the released chemical.
Mitigation system other type	30	Text		N	The name of the mitigation system if other than one of the choices above.
Process area detectors	1	Text		N	Detection systems located on or close to process equipment. Detection systems include indicator tubes, and chromatographic, spectrometric, electrochemical, and colorimetric gas analysis.
Perimeter monitors	1	Text		N	Integrated detection networks at the source boundary. Detection systems can include fluorescent SO_2 analyzers, photoelectric tape sensors, or electrolytic chlorine detectors.
Other	1	Text		N	An indication that a monitoring /detection system other than the ones specified was installed to detect a release of a regulated substance from the process.
Monitoring detection other type	30	Text		N	The name of the monitoring/detection mechanism in place.
Reduction chemical inventory	1	Text		N	An indication that since the last PHA update there was a decrease in the quantity of regulated substances stored on site.
Increase chemical inventory	1	Text		N	An indication that since the last PHA update there was an increase in the quantity of regulated substances stored on site.
Change in process parameters	1	Text		N	An indication that since the last PHA update there was an increase or decrease in temperature, pressure, flow rates, etc.
Installation of process controls	1	Text		N	An indication that since the last PHA update there has been an addition of process controls used to prevent or limit releases.
Installation of process detection systems	1	Text		N	An indication that since the last PHA additional detection systems have been installed to detect a release of a regulated substance from the process.

Field	Length	Type	Format	Required?	Description
Installation of perimeter monitoring systems	1	Text		N	An indication that since the last PHA update additional perimeter monitoring systems have been installed to detect a release of a regulated substance from a process.
Installation of mitigation systems	1	Text		N	Addition of systems such as those listed under MitigationSystems.
None required/recommended	1	Text		N	An indication that since the last PHA update, no change has been made to the process.
PHA Update Change Name	100	Text		N	The name of the change since the last PHA update.
Date of most recent review/revision of operating procedures	8	Date	YYYYMMDD	N	The date of most recent review/revision of operating procedures.
Date of most recent review/revision of training programs	8	Date	YYYYMMDD	N	The date of most recent review/ revision of training programs.
Classroom training	1	Text		N	An indication that training was in a classroom setting.
On-the-job training	1	Text		N	An indication that training was on the job.
Training type name	50	Text		N	The name of the training type provided if other than one of the choices listed above.
Written test	1	Text		N	A written test was given to determine and evaluate employee comprehension of training materials.
Oral test	1	Text		N	An oral test was given to determine and evaluate employee comprehension of training materials.
Demonstration	1	Text		N	A demonstration was given to determine and evaluate employee comprehension of training materials.
Observation	1	Text		N	Employees were observed to determine and evaluate employee comprehension of training materials.
Competency test type name	30	Text		N	The name of the type of competency test used.
Date of most recent review/revision of maintenance procedures	8	Date	YYYYMMDD	N	Date of most recent review/ revision of maintenance procedures.
Date of most recent equipment inspection/test	8	Date	YYYYMMDD	N	Date of most recent equipment inspection/test.

Field	Length	Type	Format	Required?	Description
What equipment inspected/tested	100	Text		N	The name or description of the equipment tested.
Date of most recent compliance audit	8	Date	YYYYMMDD	N	Date of most recent compliance audit.
Expected date of completion of any changes resulting from the compliance audit	8	Date	YYYYMMDD	N	Expected date of completion of any changes resulting from the compliance audit.
Date of most recent incident investigation	8	Date	YYYYMMDD	N	Date of most recent incident investigation.
Expected date of completion of any changes resulting from the investigation	8	Date	YYYYMMDD	N	The expected date of completion of any changes resulting from the investigation.
Date of most recent change that triggered review/revision of safety information, hazard review, operating or maintenance procedures or training	8	Date	YYYYMMDD	N	Date of most recent change that triggered review/revision of safety information, hazard review, operating or maintenance procedures or training.
CBI Indicator Code	1	Text		N	An indication that Confidential Business Information (CBI) was claimed for certain data elements in the record.

9.2 Section 8 - Prevention Program 2 Chemicals

The maximum size for this record is 132 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S8PP2CHEMICALS	14	Text		Y	Must be 'S8PP2CHEMICALS'
Prevention Program Level 2 Identifier	4	Numeric		Y	A unique number used to identify each prevention program within a NAICS code.
Process Chemical Identifier	4	Numeric		Y	A number used to identify each chemical within a single RMP. From S1 - Chemicals in Covered Process.
Prevention Program Level 2 Identifier	4	Numeric		Y	A unique number used to identify each prevention program within a NAICS code.

Field	Length	Type	Format	Required?	Description
Chemical Name	100	Text		Y	The name of the regulated flammable chemical above the threshold quantity in a process at the source.
CAS Number	10	Text		Y	Chemical Abstract Service (CAS) registry number for the flammable chemical.

10.0 Section 9 - Emergency Response Plan

Each facility must submit an Emergency Response Plan. This plan describes the facility's emergency response program for protecting public health and the environment. The maximum size is 180 bytes.

Field	Length	Type	Format	Required?	Description
Record Identifier = S9ERPLAN	8	Text		Y	Must be 'S9ERPLAN'
Flag indicating the facility is included in the written Community Emergency Response Plan (ERP)	1	Text		Y	Flag indicating that the facility is included in the written Community Emergency Response Plan (ERP).
Facility has its own written ER Plan	1	Text		Y	Flag indicating that the facility has its own written Emergency Response Plan (ERP).
Does Plan include specific actions to be taken in response to accidental releases of regulated substance(s)?	1	Text		Y If Facility has its own ERP	Flag indicating that the plan includes specific actions that should be taken in response to an accidental release of a regulated substance.
Does Plan include procedures for informing the public and local agencies responsible for responding to accidental releases?	1	Text		Y If Facility has its own ERP	Flag indicating that plan includes procedures for informing public and local agencies responding to the accidental releases.
Does plan include information on emergency health care?	1	Text		Y If Facility has its own ERP	Flag indicating that plan includes information on emergency health care.
Date of most recent review/ update of ER plan	8	Date	YYYYMMDD	Y If Facility has its own ERP	Date of most recent review/ update of ER plan.

Field	Length	Type	Format	Required?	Description
Date of most recent ER training for employees	8	Date	YYYYMMDD	Y If Facility has its own ERP	Date of most recent ER training for employees.
Local agency with which the ER plan is coordinated:	35	Text		Y	Name of local agency with which the ER plan is coordinated.
Phone number of local agency with which the ER plain is coordinated	10	Text		Y	Phone number of local agency with which the ER plan is coordinated.
OSHA 1910.38	1	Text		N	An indication that the site is subject to OSHA's Emergency Action Plan. All sources are subject to this rule except state and local governments in states without delegated OSHA programs.
OSHA 1910.120	1	Text		N	An indication that the site is subject to OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) plan.
Clean Water Act/SPCC (40CFR264, 265, 279.52)	1	Text		N	An indication that the site is subject to EPA's Oil Spill Prevention Control and Countermeasures Plan requirements.
RCRA (40 CFR 264, 265, 279.52	1	Text		N	An indication that the site is subject to EPA's Resource Conservation and Recovery Act permitting requirements for solid waste.
OPA-90 (40 CFR 112, 33 CFR 154, 49 CFR 194, 30 CFR 254)	1	Text		N	An indication that the site is subject to EPA, U.S. Coast Guard, Department of Transportation, and Department of the Interior facility response plan requirements. Currently these apply only to oil.
State EPCRA rules/law	1	Text		N	These are the state Emergency Planning and Community Right-to-Know (EPCRA) laws. Federal EPCRA does not require facility response plans, but some state laws may.
Other Regulation	100	Text		N	The name of the other regulation which applies to the Emergency Response Plan.

APPENDIX D

SRMP Data Elements that Can Be Claimed as CBI

The table below lists, by section of the RMPlan, the data elements that may be claimed as CBI. This list may be modified during the Design Phase of the OSWER System Life Cycle.

Executive Summary	
None	
Section 1 Registration	
NAICS Code	CAS number
Chemical name	Quantity (lbs)
Section 2 Toxics Worst Case	
Chemical name	Quantity released (lbs)
Physical State Code	Release rate (lb/min)
Analytical Basis Code	Release duration (hours: minutes)
Scenario	Topography Code
Section 3 Toxics Alternative Releases	
Chemical Name	Release rate (lb/min)
Physical State Code	Release duration (hours: minutes)
Analytical Basis Code	Topography Code
Quantity released (lbs)	
Section 4 Flammables Worst Case	
Chemical Name	Quantity released (lbs)
Analytical Basis Code	
Section 5 Flammables Alternative Releases	
Chemical Name	Quantity released (lbs)
Analytical Basis Code	Lower flammability limit
S5 Scenario Code	
Section 6 Five-Year Accident History	
None	

Section 7 Prevention Program - Program 3

Process NAICS Identifier	Flares
Chemical Name	Manual shutoffs
Toxic Release	Automatic shutoffs
Fire	Interlocks
Explosion	Alarms & procedures
Runaway reaction	Keyed bypass
Polymerization	Emergency air supply
Overpressurization	Emergency power
Corrosion	Backup pump
Overfilling	Grounding equipment
Contamination	Inhibitor addition
Loss of cooling, heating, electricity, instrument air	Rupture disks
Other	Excess flow device
Other (specify)	Quench system
Vents	Purge system
Relief valves	
Check valves	
Scrubbers	

Section 8 Prevention Program - Program 2

Toxic release	Interlocks
Runaway reaction	Alarms and procedures
Polymerization	Keyed bypass
Overpressurization	Emergency air supply
Corrosion	Emergency power
Overfilling	Backup pump
Contamination	Grounding equipment
Loss of cooling, heating, electricity, instrument air	Inhibitor addition
Vents	Rupture disks
Relief valves	Excess flow device
Check valves	Quench system
Scrubbers	Purge system
Flares	Other
Manual shutoffs	Other (specify)
Automatic shutoffs	

Section 9 Emergency Response

None

APPENDIX E

RMP* Submit Function Hierarchy Diagram

APPENDIX F

RMP* Maintain Function Hierarchy Diagram

APPENDIX G

RMP* Info Function Hierarchy Diagram

APPENDIX H

Function Entity Cross Reference for RMP*Submit

APPENDIX I

RMP* Submit Function Entity Cross Reference for RMP* Maintain Database

The function to entity cross-reference appendix contains a report for the RMP*Submit functions that will perform CRUD (create [C], read [R], update [U], and delete [D]) operations on entities in the RMP*Maintain database. The report consists of a cover page and a cross-reference page. The cover page identifies the parent function of the elementary processes for which CRUD operations on entities may be reported on the cross-reference page.

APPENDIX J

RMP* Maintain Function Entity Cross-Reference

The function to entity cross-reference appendix is composed of multiple reports. Each report consists of a cover page and a cross-reference page. The cover page identifies the parent function of the elementary processes for which CRUD (create [C], read [R], update [U], and delete [D]) operations on entities may be reported on the cross-reference page.

APPENDIX K

RMP* Info Function Entity Cross-Reference

The function to entity cross-reference appendix is composed of multiple reports. Each report consists of a cover page and a cross-reference page. The cover page identifies the parent function of the elementary processes for which CRUD (create [C], read [R], update [U], and delete [D]) operations on entities may be reported on the cross-reference page.

APPENDIX L

Entity Relationship Diagram (ERD) for RMP*Maintain

APPENDIX M

RMP* Submit Data Element Dictionary

APPENDIX N

RMP* Maintain Data Element Dictionary

APPENDIX O

RMP* Maintain Entity Descriptions